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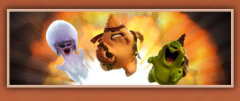
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3dcreative



SUMO!

Daniel Moreno went from starting out as an interface designer to heading one of the teams responsible for creating the iconic game series, 'Commandos'. Catch the interview with Character Artist for PyroStudios, Daniel Moreno, inside!



ARTICLES
'Plankton Invasion', 'Exquisite Corpse', plus more!



INTERVIEWS
Daniel Moreno and Francois Rimasson



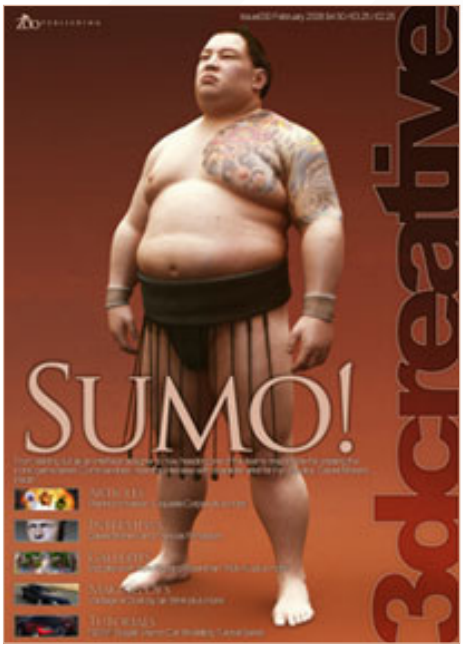
GALLERIES
Includes work from Richard Rosenman, Rick Xu, plus more!



MAKING OF'S
'Vantage at Dusk' by Ian Brink, plus more!



TUTORIALS
NEW: Bugatti Veyron Car Modelling Tutorial Series, plus more!



Editorial

Hello and welcome to the big 3-0: Issue 30! We're not quite collecting our pensions just yet, and don't worry, we have plenty still left in us yet! Quite fittingly, this month's issue is a 'biggy', too – and I mean BIG! Our car modelling tutorial artists have been going all-out modelling crazy on the second part of the Bugatti Veyron tutorial series this month, so they've given us plenty to keep you all busy with throughout February, whether you use 3ds Max, Maya, Cinema 4D, LightWave of Softimage XSI (see page 119). (**Remember:** if you missed out on Part One, don't fret – simply pick up the back issue: #029 from the shop!) And just so all of you lovely ZBrush users don't feel left out, and for those of you who want to take up ZBrush but just haven't quite had the nudge you need yet, then we begin this month the first of a seven-part tutorial series: Beginner's Guide to ZBrush, by Wayne Robson (see page 086). Wayne's written a few ZBrush tutorials for us recently, so we thought we'd put him to the test with the creation of this big series for ZBrush, so we hope this will create many more happy ZBrush users in the future, as we know you're all out there! Anyway, whilst we're carrying ourselves away with tutorials this month, we thought we'd also throw in another great little tutorial series for all those budding animators out there: 'Animation: General Tips and Techniques', by Jae Ham (see page 079) – take a look! On a different note, our interviews this month are with two fantastic character artists: Daniel Moreno (see page 007) and Francois Rimasson (see page 017), so check those out and get yourself inspired! Interviews are a great way to kick-start your motivation and help out in those times of self-doubt, so they're always worth a read. Plus, the work you'll find gracing the interview pages is always an inspiration in itself, so it's a win-win situation really, isn't it?! Right, well I shall leave you to explore this month's issue, and I'll catch up with you again next month with some more content-filled goodness – just for you. Take care 'til then and enjoy Issue 030. Ed.

Free Stuff!

Wherever you see this symbol, click it to download resources, extras and even movies!



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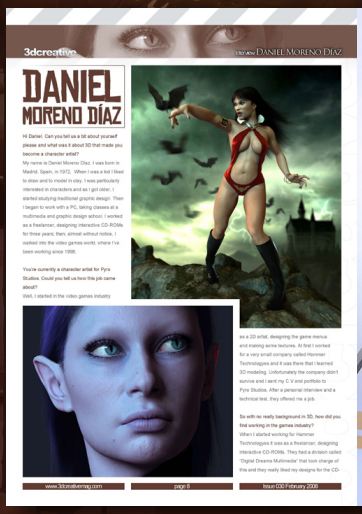
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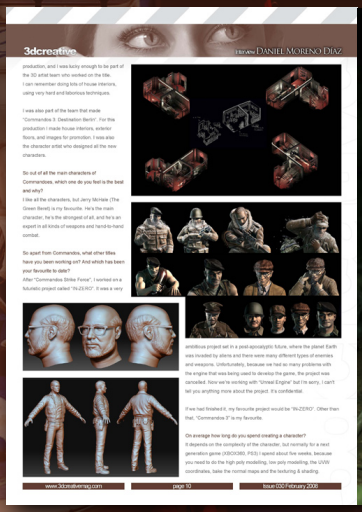


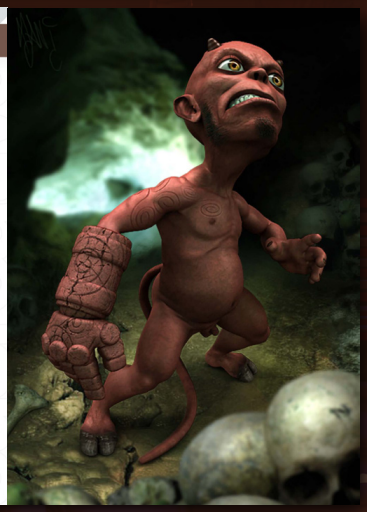
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1. Open the magazine in Reader;
2. Go to the VIEW menu, then PAGE DISPLAY;
3. Select TWO-UP CONTINUOUS, making sure that SHOW COVER PAGE is also selected.

That's it!

Contributing Artists

Every month, many creative and talented artists around the world contribute to 3DCreative Magazine. Here you can read all about them. If you would like to be a part of 3DCreative or 2DArtist Magazines, please contact lynette@zoopublishing.com.

Our new car modelling tutorial series, Bugatti Veryon, brings a group of new talented artists to 3DCreative Magazine. These wonderful people are responsible for creating our 3ds Max, Cinema 4D, LightWave, Maya & Softimage XSi content this month.





Craig A. Clark



Having worked on a wide range of projects, including games (Powerdrome, 8 Days, and Motorstorm), music videos (Muse: Sing for Absolution) and feature films (Goal 2, Harry Potter, Underdog, and The Golden Compass), Craig has a broad range of experience. Throw in commercials/product visualisations and the range is greater still!

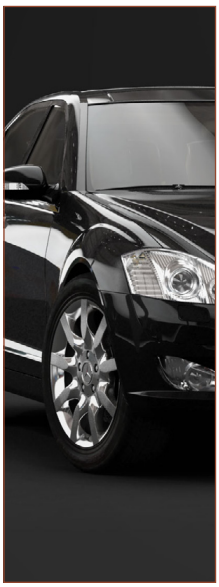
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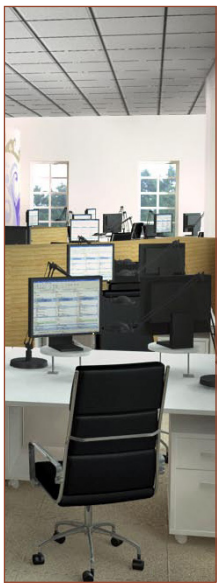


Ali Ismail

is a 3D artist who has worked on everything from Hollywood movies to TV commercials to games. He started out by doing the first 3D games in Jordan, then freelanced to clients such as Microsoft and VW, and has also worked for ILM on projects such as Indiana Jones and the Kingdom of the Crystal Skull whilst at Lucasfilm Animation Singapore.

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Emlyn Davies



is a 27 year old freelance 3D artist, based in Birmingham, UK. He has four years experience in Cinema 4D and has freelanced mainly at Cadbury as a 3D consultant for most of his professional career. Passionate about all things 3D, he constantly strives to develop his expertise and blur the boundaries between the real and the digital world.

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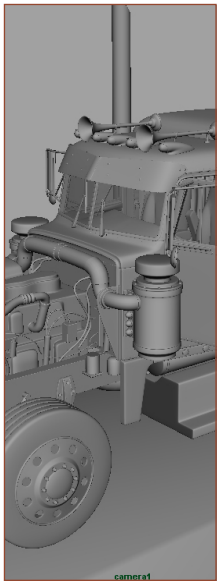


Krisztián Szeibold

is a 3D Artist living in Budapest, Hungary. In 2000, he started using 3D software such as 3D Studio R4, and later 3ds Max and Maya. He's currently working as a 3D Artist on post-productions and commercials with Softimage XSI and Fusion. He hopes that he's going to be able to work on feature films in the future.

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szkoryon@gmail.com





Andrew Hobson



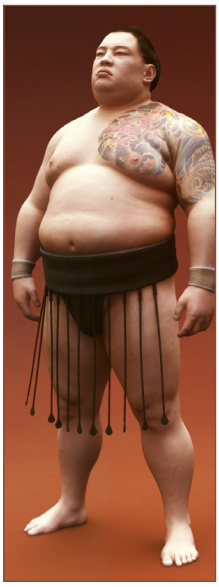
has been using 3D software for about 4-5 years, mainly as a hobby, and enjoys developing his skills through various tutorials and courses. He's most proficient at modelling, especially vehicles, but is looking to develop his organic modelling, particularly humans/fantasy figures. He would love to work in the film or games industry (especially on the Nintendo Wii) so he can further develop his skills. andrewhobson2@gmail.com



Daniel Moreno Díaz

was born in Madrid, Spain, in '72. He studied graphic design and worked as a freelancer designing interactive CD-ROMs. He started in the games industry in '98 as a 2D artist, designing game menus and making textures. He's worked for Pyro Studios since October '00, and has been part of the 3D artists team for "Commandos 2 Men of Courage" and "Commandos 3 Destination Berlin".

www.guanny-art.com guanny@pyrostudios.com





Joeri Christiaen



The son of fisherman, Joeri grew up close to the sea, where he first encountered 3 tiny creatures. Since he was a child at the time, he assumed they were just a figment of his imagination and chose to ignore them for many years. As an adult, the fantasy became reality and he found a perfect way to put them to good use: as the stars of a mini animation series: "PlanktonInvasion". www.planktoninvasion.com

joeri.christiaen@pandora.be



François Rimasson

has been working as a CG artist since 1990. He's worked recently on game cinematics, TV ads and CG movies. He mainly focuses on character modelling, sculpting and texturing, with extensive use of ZBrush as his application of choice, amongst a large toolset.

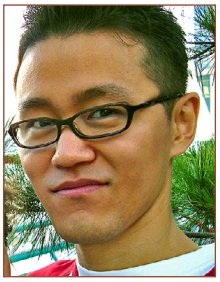
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Jae Ham



is a 3D artist currently residing in New York, USA. He is a staff animator at PSYOP Inc. His recent work includes Adidas Beijing Olympics centerpiece, Nissan Infiniti, Safeway and Pepsi. He loves music, movies, photography and visual art in general. Besides the projects at PSYOP, he is currently working on a short animation which will be premiered in mid-2008.

http://www.jaeham.net jae@jaeham.net



Image by Joeri Christiaen



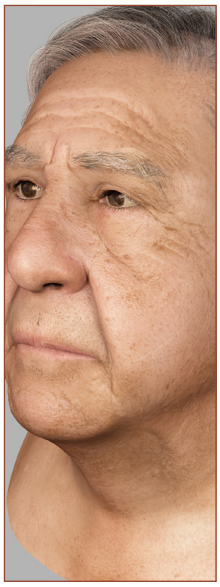
Wayne Robson

is a freelance digital artist & professional author living in Durham, England, behind a keyboard. He's sure he had a life at some point, but isn't quite sure where it disappeared to (he's quite sure he did have one at some point, though). Wayne's DVDs are available through Kurv Studios, including his series 'Get into ZBrush'.

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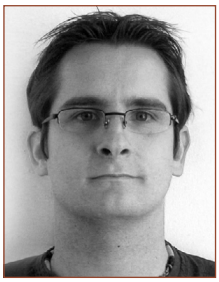


SweeKim Lai



is a 3D Artist from Singapore, currently working for Framestore CFC as a texture artist in London. Before moving to London, he spent 4 years working as a VFX artist for post production and commercial works. He also enjoys the technical process, such as character rigging and scripting in MEL. Other than computer stuff, he enjoys painting and comic art. http://www.sweekim.com

sweekimlai@yahoo.com



Ian Brink

started CG at the aged 10, creating illustrations and short animations in dos environments, like Autodesk Animator. In '98 he began his career as an airbrush artist for Monsoon Design, then took a Bachelor's degree in design and illustration to cement his love for 3ds Max. As well as his full-time job, Ian does lots of work through his freelance agency, thebrinc, in the car and architectural industries.

http://www.thebrinc.com ian@thebrinc.com





Image by Daniel Moreno Díaz

Would You Like to Contribute to 3DCreative or 2DArtist Magazine?

We are always looking for tutorial artists, gallery submissions, potential interviewees, Making Of writers and more. For more information, send a link to your work here: **lynette@zoopublishing.com**



DANIEL MORENO DÍAZ

"Jerry McHale (the Green Beret) is my favourite. He's the main character, he's the strongest of all, and he's an expert in all kinds of weapons and hand-to-hand combat"

Having started out designing interactive CD-ROMs for a career, Daniel is now lead character artist for one of the four development teams at Pyro Studios. We chat with him about the work that he's been doing while he's been there and find out how his life changed forever.

DANIEL MORENO DÍAZ



Hi Daniel. Can you tell us a bit about yourself please and what was it about 3D that made you become a character artist?

My name is Daniel Moreno Díaz. I was born in Madrid, Spain, in 1972. When I was a kid I liked to draw and to model in clay. I was particularly interested in characters and as I got older, I started studying traditional graphic design. Then I began to work with a PC, taking classes at a multimedia and graphic design school. I worked as a freelancer, designing interactive CD-ROMs for three years; then, almost without notice, I walked into the video games world, where I've been working since 1998.

You're currently a character artist for Pyro Studios. Could you tell us how this job came about?

Well, I started in the video games industry as a 2D artist, designing the game menus and making some textures. At first I worked for a very small company called Hammer Technologyes and it was there that I learned 3D modeling. Unfortunately the company didn't survive and I sent my C.V and portfolio to Pyro Studios. After a personal interview and a technical test, they offered me a job.



So with no really background in 3D, how did you find working in the games industry?

When I started working for Hammer Technologyes it was as a freelancer, designing interactive CD-ROMs. They had a division called "Digital Dreams Multimedia" that took charge of this and they really liked my designs for the CD-



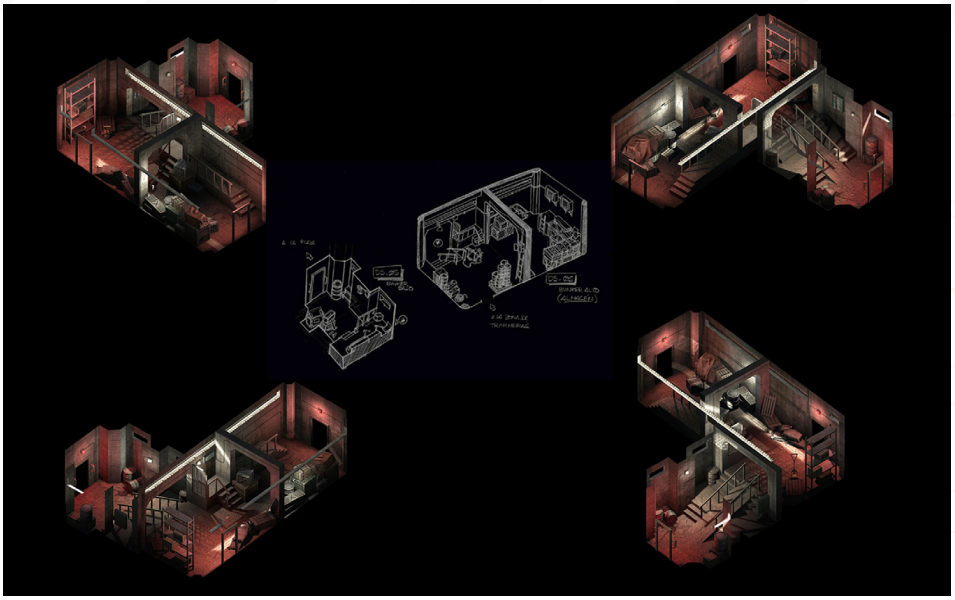
ROM menus. They offered me a fixed contract to design the menus for their games and that's how I managed to enter the world of the video games. From there I became interested in the 3D modelling that my colleagues were doing, I knew a bit about 3D Studio 4 for MS2 already and I taught myself to use the new version of 3D Studio Max in my spare time. With a lot of practicing and help from my colleagues, I was then able to model 3D characters.

Pryo Studios is best known for the Commandoes series of PC games. Did you have the pleasure of working on these or was this before your time?

When I started in Pyro Studios, in October 2000, "Commandos 2: Men of Courage" was in

production, and I was lucky enough to be part of the 3D artist team who worked on the title.
I can remember doing lots of house interiors, using very hard and laborious techniques.

I was also part of the team that made "Commandos 3: Destination Berlin". For this production I made house interiors, exterior floors, and images for promotion. I was also the character artist who designed all the new characters.



So out of all the main characters of Commandoes, which one do you feel is the best and why?
I like all the characters, but Jerry McHale (The Green Beret) is my favourite. He's the main character, he's the strongest of all, and he's an expert in all kinds of weapons and hand-to-hand combat.



So apart from Commandos, what other titles have you been working on? And which has been your favourite to date?
After "Commandos Strike Force", I worked on a futuristic project called "IN-ZERO". It was a very ambitious project set in a post-apocalyptic future, where the planet Earth was invaded by aliens and there were many different types of enemies and weapons. Unfortunately, because we had so many problems with the engine that was being used to develop the game, the project was cancelled. Now we're working with "Unreal Engine" but I'm sorry, I can't tell you anything more about the project. It's confidential.





If we had finished it, my favourite project would be "IN-ZERO". Other than that, "Commandos 3" is my favourite.

On average how long do you spend creating a character?
It depends on the complexity of the character, but normally for a next generation game (XBOX360, PS3) I spend about five weeks, because you need to do the high poly modelling, low poly modelling, the UVW coordinates, bake the normal maps and the texturing & shading.







Throughout an artist's career they will always look at artwork by their favourite artist, whether it's for research or inspiration. So where do you find inspiration from?

Anything that happens before my eyes. It can be cinema, comics, other artists work, etc. There are so many place where an artist can find inspiration; you simply have to look.







Away from the computer screen, what sort of things do you enjoy doing to relax?

There are several things I enjoy doing to relax: I like to play with my son Sergio, to see a good film in my house and to go out with my friends. I also enjoy sports - particularly rock climbing and alpine skiing.

Well it has been a pleasure talking with you. One last question before we wrap things up. What has been the most influential piece of advice that you have been given and by whom?

Thank you very much; it has been a pleasure for me too. Well, when I was a child, I only liked to do hand drawings and traditional modeling but my mother advised me to learn some computer arts. She said the future of art was going to be in computers.

DANIEL MORENO DÍAZ

For more work by this artist please visit:

http://www.guanny-art.com

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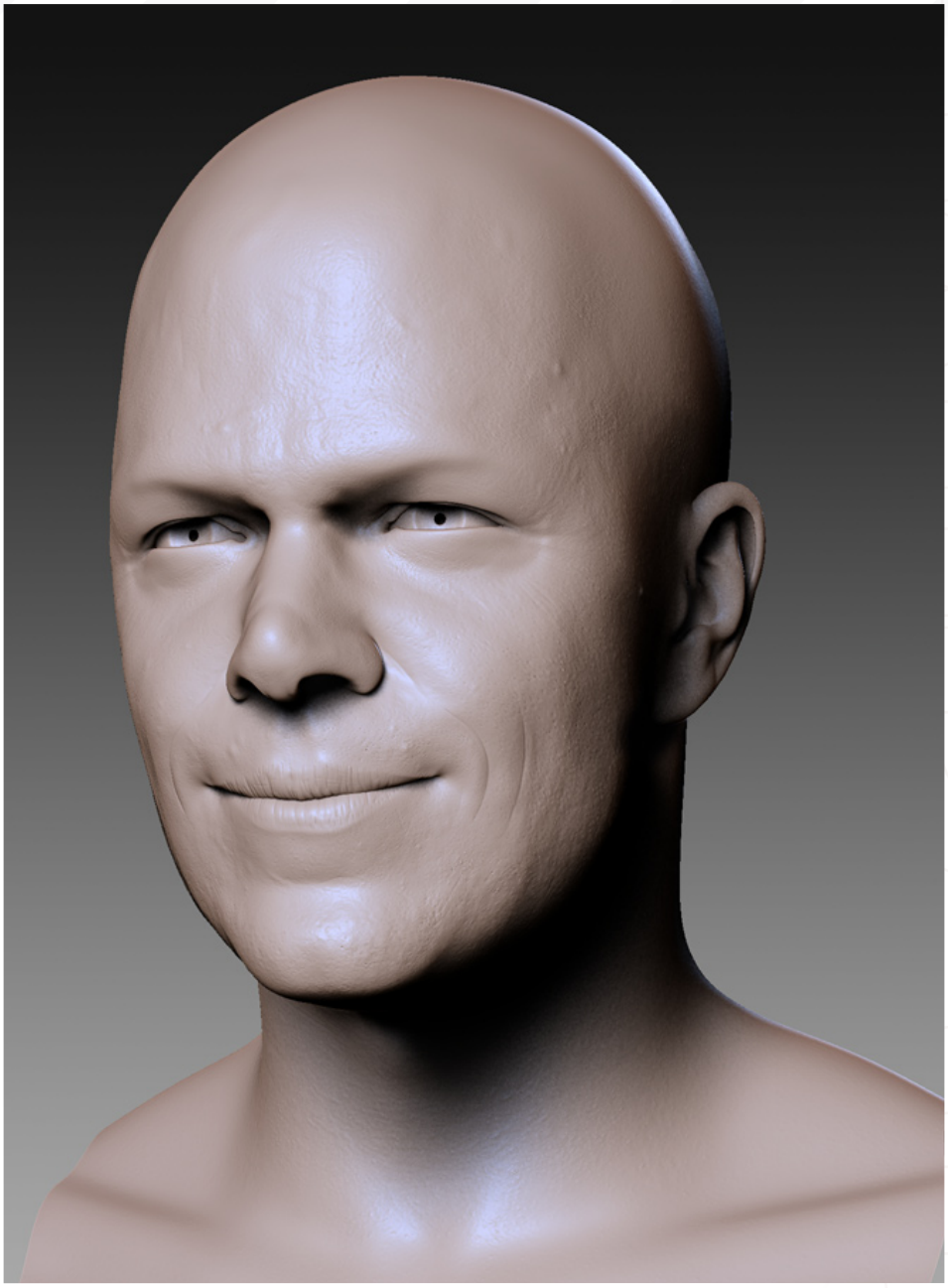
Francois Rimasson

"I LIKE SPENDING MY TIME CREATING A CHARACTER OR AN ILLUSTRATION, FINDING THE BEST POSE, SHAPE, EXPRESSION, MOOD AND PAYING ATTENTION TO THE SMALLEST DETAIL THAT CAN MAKE MY MODEL BELIEVABLE"



Francois Rimasson is a freelance digital artist based in Paris. He specializes in charater creation and has worked across a number of sectors in the CG industry including film, game and television.

Francois Rimasson



First of all it seems from your website that you have experience across a number of different fields. Do you find that having a broad repertoire of skills makes work easier or in fact imposes heavy demands in terms of keeping up to date with so many disciplines?

Even if I have already touched other domains, like set modeling, for a couple of years I have more or less specialised in the creation of characters, from A to Z. This specialisation allowed me to acquire a good knowledge of anatomy and facial expressions. Artistically, I do indeed have fewer things to learn now than I did 10 years ago, but the huge difference between now and then is the level of software. At the time, there were fewer things to be learned and Softimage, 3ds Max and Photoshop were my software of choice. They were enough.

Now, apart from the major software like Maya and Photoshop, which are much more complex and powerful - and have a major update each year - there are a multitude of small and very specialized software packages. Some of these are very useful, allowing for simpler or more complex work and also allowing the artist to save a considerable amount of time.



I'm working on films and ads that require high-end models and it is for that reason that I constantly have to keep up to date with new software releases. I have to continue to learn and explore the ones I know already, and also learn new workflows and techniques. All of this takes time. It was always like that, and it will stay like that for a good while yet.

It is for this reason that I do not want to scatter. The average level of quality in CG raises each year; I prefer to work and focus mainly on what I do the best: character creation. It is a choice, a way to see things and to work.

How do you think Mudbox compares to Zbrush?

Being a Zbrush user, I understand why you ask me this question. Back in 1999, Zbrush was the first software capable of sculpting real time models



composed of several hundreds of thousands of polygons. During its release in 2004, version 2.0 was made famous by its use on the Lord of the Rings trilogy.

At first, the purpose behind the creators of Mudbox was to develop software which wouldn't have the defects of Zbrush. Its main criticisms being centred on its complex interface at first sight, unusual for a 3D software, as well as on its display and workflow which was not really casual. Mudbox was thus developed by using a standard OpenGL display common to a lot of 3D software, and with the navigations and sculpting shortcuts of Maya. Regrettably, it is still young, and despite its simplicity of use and a certain power, still falls short of maturity.

I hope that with the acquisition of Skymatter by AutoDesk, its evolution will go in the right direction and its technology will be partially integrated into Maya, 3ds Max, or future software. The ideal software for me would be software which would take the best of both, and which would allow me to model, sculpt, retopologize, texture, animate and render within the same application.

Mudbox certainly corrected some of the 'defects' of Zbrush, but without maintaining its strength. We'll see in a couple of years, but for now I stay with Zbrush without hesitation.

Zbrush is not only a 3D sculpting software, but a mix between 2D, 2.5D and 3D. For example, I can create a brush directly from an image and transform this on a 3D mesh that I can sculpt, deform, and use this mesh as a 2D brush again. Version 3.1 allows me to sculpt an impressive number of polygons in real-time; its tools are very complete. I'm in love with the new brushes, the projection and painting tools, the new Matcap Materials, and the 'transpose' tool that allow me to pose a character within minutes.

It serves me for a large number of reasons, whether it is to create models for feature films, real time characters for a next-gen game, create an illustration, or retouch a bump map by showing it in relief.

Zbrush is a part of a set of software which I use regularly in conjunction with Maya, Silo, Bodypaint and 3D Paint.



With respect to the games industry, it is very common to model the characters in Zbrush these days if only to generate normal maps. Do you find the modelling process more restricting compared to film work or is this no longer the case?

Since the launch of the next gen consoles, modeling characters and sets has become very exciting. The modeling process is the same. I could even say that it offers more freedom. The fact that the high definition model is not being used means we can work without caring about the number of polygons because all the details will be baked onto textures. The main problem in the process is the extraction and the retouching of normal maps. Normal maps are not as standardized at all, and may differ a lot from one 3D application to another, or to a game engine. What raises most of the problems is the way seams are managed between UV islands.



The second problem for me is that there is still no 3D paint which allows retouching of normal maps. The only software which allows it is made within the framework of university research and I hope that it will soon be integrated into software such as Bodypaint or 3D Brush.

The third problem is that to compensate for the distortions which appear on normal maps due to the low number of polygons of the real-time



models which are used to extract maps, there is sometimes a lot of retouching work needed in Photoshop. I've worked recently as a freelance character modeller on a game based on the Unreal Engine 3. I sculpted all the characters in Zbrush 3.1, and used Zmapper (which is one of the most versatile and powerful normal map extraction tools) to extract the normal maps.

Because I did not know the exact parameters that the Unreal Engine used, I could not reproduce them in Zmapper, and nor did I have access to the game engine. Regrettably, I could not verify if these maps worked. Creating and working with normal maps is a recent development and unfortunately, the existing software has not yet been adapted to be able to work without any problems.



What would you say is your forte and why?

Well, I focused on character modeling, and I don't have any regrets. To sculpt characters is an artistic challenge, because it asks for a good knowledge of anatomy (even if it is about cartoon characters) and it's also a good way to express emotions. I like spending my time creating a character or an illustration, finding the best pose, shape, expression, mood and paying attention to the smallest detail that can make my model believable. It is something that often demands a lot of patience, and a great sense of observation.



You have outlined some of the challenges inherent in character modelling and the various skills necessary for creating good models but which characters by other artists rate amongst your favourites and why?

There are many talented artists around. I'm in love with Rick 'Monstermaker' Baker's fantastic work, Jeremy Engleman's painterly Zbrush renderings, Sebastien Legrain's technical and artistic skills, Damien Canderle and oDDity, a very talented Mudbox artist. Each of them possesses something more which makes them unique.

Of all the sectors of the CG industry you have worked in, what have been your favourite areas?

So far, I enjoyed working on animated features. Generally they leave us much more time to make quality work. It's something that matters to me,



even if a rather short production time can be rewarding by urging me to find shortcuts and means finishing the work in time.

Have you ever rigged and animated any of your own characters at all?

I'm a poor animator. I can't even animate simple things. Previously, when I worked on an illustration, I spent some time rigging and skinning the characters I worked on. It was something which took time and as a result I now pose with Zbrush and its 'transpose master'.

A few years ago, I worked on some hi-res characters for 'L'ile noyée' (Sunken island), for a French games company. They sent me a couple of designs, and a basic skeleton and I had to deliver completed characters, ready to be animated and rendered. This work was the only occasion I had to fully skin and rig a character.

Which artists inspire you?

Many artists inspired me. I love classical and 18th century sculptors, modern ones like Rodin and Jacques le Nantec, artist like Claire Wendling and Brom. I also spend a lot of time browsing the traditional clay sculpture forums of Zbrush and Mudbox.

You mention Rodin but how do you think some of these classical and traditional artists would find modern software such as Zbrush?

I would not like to speak for them. I sincerely believe that certain artists would be enthusiastic, (at least, I hope so!) others not. I practice sculpture from time to time, and the physical, organic and tactile sensation that you have when you feel the sculpture under the fingers is still missing.

But on the other hand, these sculpting applications give you a fantastic freedom. The freedom to work symmetrically, or not; the freedom to 'undo' the last actions; the freedom to work at your own rhythm without worrying about the topology of your mesh, or without being afraid that your sculpture can break or collapse; the freedom to work with powerful and versatile tools with almost an unlimited amount of polygons.

At the very least, I think their work would have been different. The possibilities offered by software such as Zbrush or Mudbox allow the artist to rid themselves of constraints and to go much more further into detail, or create fantastic sculptures.

FRANCOIS RIMASSON

For more work by this artist please visit:
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ffrima@orange.fr
Interviewed by : Richard Tilbury



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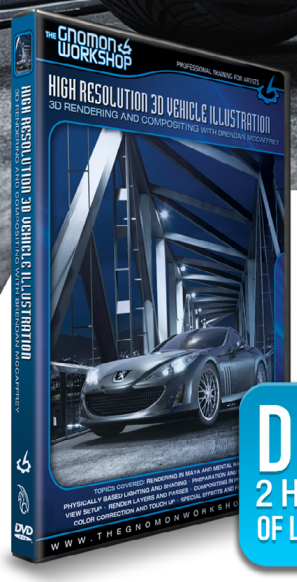
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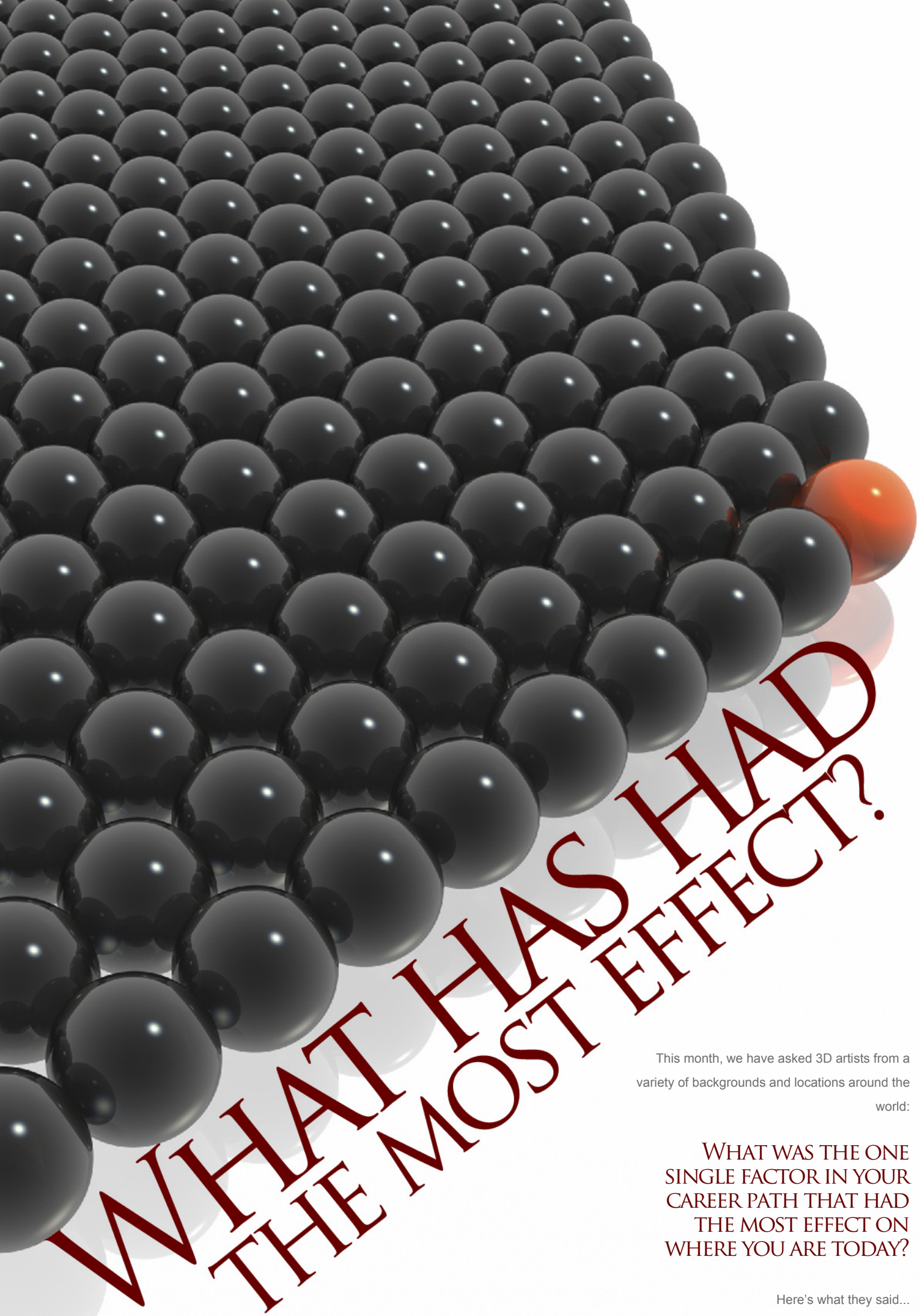
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WHAT HAS HAD THE MOST EFFECT?

This month, we have asked 3D artists from a variety of backgrounds and locations around the world:

WHAT WAS THE ONE SINGLE FACTOR IN YOUR CAREER PATH THAT HAD THE MOST EFFECT ON WHERE YOU ARE TODAY?

Here's what they said...

WHAT HAS HAD THE MOST EFFECT ON WHERE YOU ARE TODAY?



image by Andre Kutscherauer

ADRIAN TIBA

System Engineer, SC Infologic

Oradea, Romania

I wish to work in the CG industry, so I continue to learn.

ALI ISMAIL

Digital Artist, Lucasfilm Animation, Singapore

Realising and accepting that art is something I do only for enjoyment and satisfaction, and that it isn't exactly a steady, risk-free career.

ANDERS LEJCZAK

Project Manager, Framfab, Malmoe, Sweden

Turbulence.

ANDRÉ HOLZMEISTER

I never give up and I am never satisfied with my art.



image by Dana Dorian

ANDRE KUTSCHERAUER

3D Designer, Studio Messslinger Gmbh

Munich, Germany

The work in a classical industry photo studio. There I met the reality of light.

ANNA CELAREK

Student, Vienna

Switching to 3ds Max (from Autocad).

BOGDAN

Without any second thoughts or doubts: my girlfriend at that time, and now my wife, Irina. She was the one single factor that had the most effect in my career. I must thank her for everything.

Cesar Alejandro Montero Orozco

CG Artist & Freelancer, Digi-Guys

London (UK) and Mexico

When I saw my nephew smile for a character I made. A single smile from a kid has been by far the best gratification I have received.

Dana Dorian

Director, Axis Animation

Glasgow, Scotland, UK

Moving to Scotland with my wife, and seeing Toy Story.

Daniel Vijoi

It was probably the willingness to work with professionals.

David Revoy

Probably the advice from a school teacher when I was a kid: “In your passion, don’t be good, or really good, or wonderfully good ... be exceptional“.

Eric Provan

3D Modeller, Sony Pictures Imageworks

LA, USA

Shortly after graduating I attended Siggraph 2005. It was a eye-opening experience that helped me understand the industry much better. Did I land a job there? No. But the experience helped me understand what is was going to take to make it into the industry. Hacky sack skills.

Eugenio Garcia

3D Illustrator & Animator, GrupoW

Saltillo, México

I was studying accounting 4 years ago, and I realised that career was not for me. So I started studying graphic design instead.

Gustavo Groppo

General 3D Artist, Mamute Mídia

São Paulo, Brazil

Surely, the freedom to create, to invent and not just to work with an feeling of obligation, in a mechanic and exhausted way. To create means mental exercise and the lack of it descreases an artist’s skills.



image by Cesar Alejandro Montero Orozco

Hasraf Dulull

Visual Effects Artist, The Moving Picture Company, London, Soho

I think it was when I was working in video games as an artist and I was asked to do some pre-viz sequences for a PS2 game the developer was pitching. I created all these pre-rendered sequences and using compositing and post production trickey, I made it look like someone playing the game. It was then that I realised I really liked doing post production trickery. So I looked into post production and got into visual effects in CG, followed by compositing.

Jure Zagoricnik

Web Developer & 3D Freelancer, Hal Interactive & 3D Grafika, Kamnik, Slovenia

Discovering 3ds Max.

Liam Kemp

Making the choice to resign from full-time employment to pursue my ambition of working on my own project.

Mathias Koehler

Freelance 3D Artist & Industrial Design Student, Braunschweig, Germany

This may sound like chumming up, but being selected to publish in 3DCreativeMag really pushed my self-confidence, which resulted in going freelance.

Matt Westrup

Seeing the original Star Wars for the first time.

Michael Seidl

3D Artist, Modelling & Rendering, www.michaelseidl.com, Vienna, Austria

A few years ago Bernhard Rieder (www.bernhardrieder.com), a great artist from Austria, contacted me. After several years (during my own CG studies) we met in Vienna. Since that point everything changed in my life.

The first project we worked together on was an awesome job at Mason Studios, New York, Detroit and Phoenix where we made the new CX-9 for MAZDA USA. This was the beginning of lot of fun and professional work in 3D industry.

Another very important part of my life was when I flew to California last year and met



image by Eric Provan

Bernhard in Los Angeles. We got in touch with lots of different 3D companies and it was really interesting to take a closer look at their work flow.

Neil MacCormack

Freelance 3D Artist, Bearfootfilms Geneva, Switzerland

Nothing but hard work.

Nicolas Collings

My internship! I think it's really important to try and get the best internship possible because it will make it easier to enter the industry.

Pedro Mendez

Initiative.

Pete Sussi

Being burnt out with advertising. I wanted a true feeling of art again, not some commercial spin on a product I could care less about. Other than that is the wealth of inspiring work out there ... and wanting to do work of a similar quality.



© Petra Stefankova

image by Petra Stefankova

Peter Sanitra

3D Artist, ImagesFX, Prague, Czech Republic

When I decided to leave college and do CG 24/7.

Petra Stefankova

It was definitely my stay at the Jiri Barta's Studio of Animated Film and TV Graphics at the Academy of Arts, Architecture and Design in Prague. I discovered the amazing world of Czech animated films and illustrated books, which are full of emotion, intellect and humour. Although the Slovak Republic was a part of Czechoslovakia and therefore I grew up with Czech films, I didn't realize they might touch me so much until I went to Prague as an art student. In addition to that I began to believe in myself thanks to Professor Barta, who was a great teacher.

Rich Diamant

I'd have to say my experience at NCSOFT. I've had the opportunity to work with some of the best concept artists in the world. I think being surrounded by that kind of talent just pushed my creativity and talent to a new level. It really made me think differently about art in general while teaching me to focus on what's truly important in an image and not worry about the little details that don't contribute to the overall piece.

Sean Dunderdale

Well my career has only just started, but having learned my trade at university I'd have to say that so far that it is the biggest factor that has led me to where I am.

Sorin Radu

Because I am young, I don't have a career yet. But because I work hard and I have ambition, I hope my career will be promising.

Stepan (O)ne Grakov

Hmm ... I think it was when I discovered the abilities of ZBRUSH.

Tiziano Fioriti

Freelance 3D Artist & Digital Matte Painter Italy

I don't think there is one in particular. People are the fruit of their experience, even the most trivial ones. I think I am still on the launch pad and I am not able to take stock of my life yet. Anyway, I have to thank my parents because they have always encouraged me and scolded me too if necessary. I am sure I would not have achieved these results without their full support.

Tycane

3D Developer & Designer, NDG, Amsterdam

Giving a friend the link to my site. He was an architect student, and because of him people started contacting me. Unfortunately I only work freelance and around where I live there isn't much CG work. But I'm working on it, and if anybody wants to give me a job ... woohoo!

Zdenek Urbánek

Student, Liberec City, Czech Republic

There are many factors but the biggest is my love for CG. Graphics are everywhere: in art, in sports ... I love graphics and I'm always pushing myself to improve.

In next month's issue, find out what a group of artists said when we asked them:

"When you're down on motivation, what can fire you up?"



image by Gustavo Groppo

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VFS Student work by Zheng Tang

PLANKTON INVASION



"While commander-in-chief Medusa and his multi-billion plankton army – roughly the size of a smallish inflatable boat – wait impatiently for D-day to finally come, a special taskforce team has been sent on land to execute the plan"

A new and unique online mini series; Plankton Invasion sees Captain John C. Star and his gang try to re-conquer the World. The creator of the series Joeri Christiaen takes us behind the scene and explains all about the wondrous animation.

PLANKTON INVASION

What

Plankton Invasion is an online, interactive mini-series consisting of monthly episodes. You can watch them on the Plankton website at www.planktoninvasion.com.

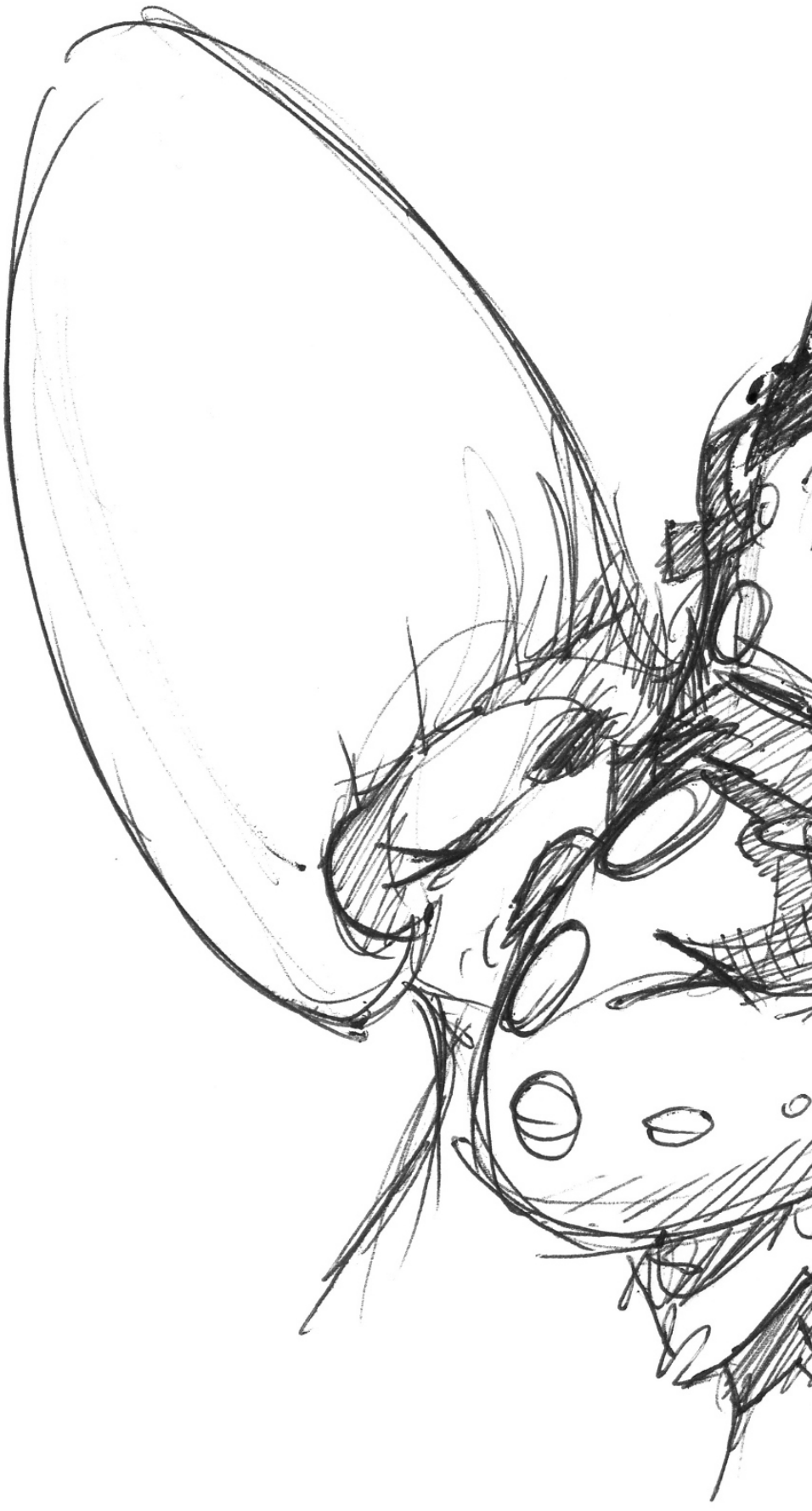
What separates Plankton Invasion from the competition and what makes it unique is its online script contest. The viewers can literally decide what will happen to the characters of the series by sending in absurd jokes, wild situations or crazy scripts. All visitors to the website have a chance to vote on their favourite gag and help select a winner each month. As the creator of the series, I then spring into action and start storyboarding, modelling, animating; turning the winning idea into a real Plankton Invasion episode! The winner of the monthly contest will see his/her name in the end titles and get a unique T-shirt with the poster of the episode.

Why

When I was testing the water, so to speak, the immediate reaction of colleagues, friends and family was: “yeah, really great, but you know what would be even funnier? If you could make them do…” and they started giving ideas, storylines and suggestions. At first I didn’t really pay that much attention to it. But when the feedback kept coming, I knew I couldn’t leave it at that. While talking to my colleague Jan about this he suddenly came up with this idea of a contest - going really interactive. We immediately felt that this could be a good idea; anybody would be able to join in the Plankton fun.

About

The zoo-plankton, the smallest form of aquatic life, organised themselves in a military way in order to invade, conquer and ultimately rule the









world just like their forefathers did during their Primal Soup heighdays, about 3 million years ago. Being aquatic they do have one problem …dry land and lots of it.

They know all too well that this problem has to be dealt with or there will be no invasion. Their leader, Commander Medusa comes up with a strategy, a 4 step action plan which will lead them to their ultimate goal:

Step 1: Pollute the environment, thus warming up the climate.

Step 2: Thus melting the polar ice caps.

Step 3: Causing a catastrophic rise in sea levels which will drown all land.



Step 4: Global Invasion.
While Commander-In-Chief Medusa and his multi-billion plankton army – roughly the size of a smallish inflatable boat – wait impatiently for D-day to finally come, a special task force team has been sent on land to execute the plan. Under the expert guidance of Captain John C. Star, our commandos comes up with insane plans and ridiculous schemes in a desperate attempt to implement the 4 stages of the plan.



Who

Plankton Invasion is a concept of Tinkertree, a company founded by me, (Joeri Christiaen - www.thurist.com), and Grid's managing duo



Frank De Wulf and Jan Goossen (www.grid-vfx.com). We see Tinkertree as a kind of think-tank where we can develop good, feasible concepts. Within the context of Tinkertree we can take the time to focus on content with respect to the creative process; fine-tuning ideas and concepts until they are ready to “leave the nest”. Besides Plankton Invasion we have been brooding on other concepts. Two of them are nearly ready for production: Zooty (for ages 3 to 6) and The Adventures of Helping Hanz (for ages 5 to 8). Plankton Invasion is a different story. I wanted a fun project that I could develop after working hours, something wild and funny. I had been playing with the idea of ‘Plankton wanting to conquer the world’; my two colleagues liked it and I started working on it. The first thing I did was to try and find the fastest pipeline, because when you want to produce an episode per month without funds, it’s crucial to streamline your workflow and keep your render times under control. I work with low poly objects animated on photomapped and collaged backgrounds. I give the lo-res model hi-res details with Zbrush, painting the displacement on top of the low poly meshes. For the animation part I use Pmg’s MessiahStudio; for me that’s the fastest tool



there is for rigging and animating. Finally we render with Fprime in Lightwave - the fastest renderer I know. For example: I completed the second teaser in just over three weeks, from the first word on paper to the final editing tweaks. With this concept, individual animators should be able to produce an episode completely on their own. We like the idea of having a team like that in the near future.

When

Our plankton invasion website is already online. You can go and check out teasers and concept trailer as well as background information on the characters, settings or the invasion plan. The contest will open somewhere next month, sorry we can not give you an exact date at the moment - it all depends on how fast we will get the forum ready. All the more reason to regularly check the website!

Plankton Invasion

For more information please visit:

www.planktoninvasion.com

Or contact:

joeri.christiaen@pandora.be

Article courtesy: Joeri Christiaen

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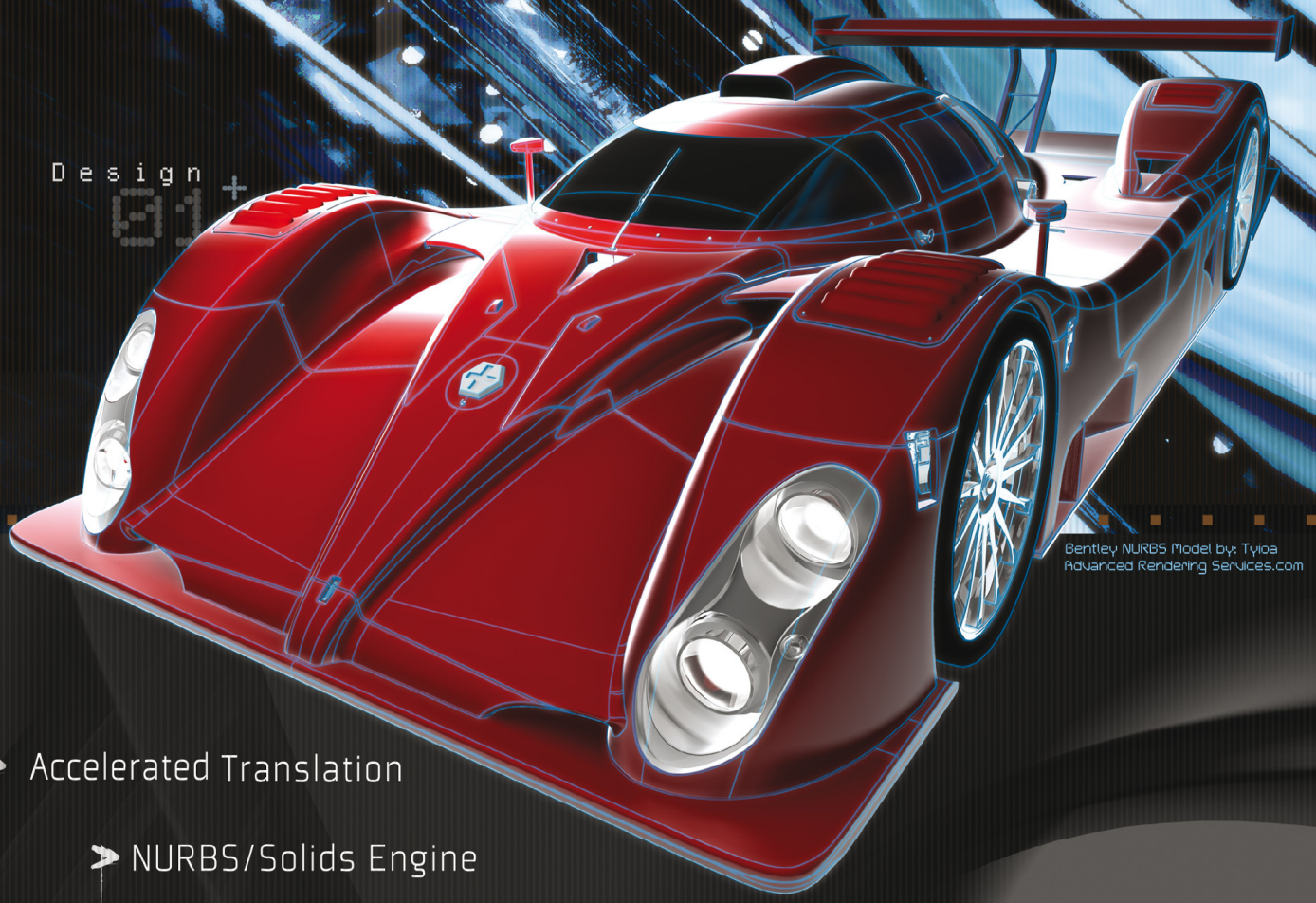
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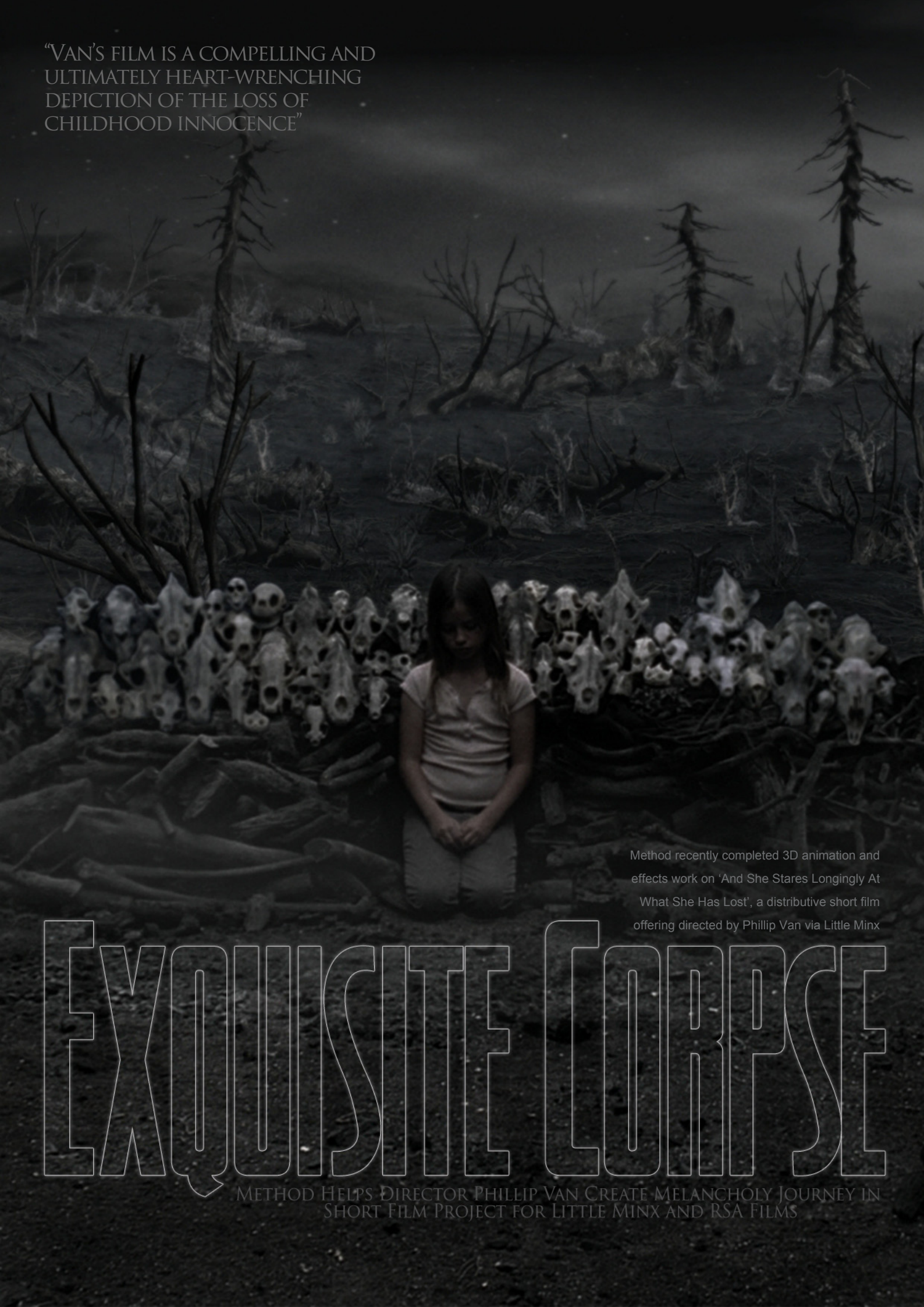


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Method recently completed 3D animation and effects work on 'And She Stares Longingly At What She Has Lost', a distributive short film offering directed by Phillip Van via Little Minx

Exquisite Corpse

Method Helps Director Phillip Van Create Melancholy Journey in Short Film Project for Little Minx and RSA Films

EXQUISITE CORPSE





Method (**www.methodstudios.com**) recently completed 3D animation and effects work on 'And She Stares Longingly At What She Has Lost', a distributive short film offering directed by Phillip Van as part of the 'Exquisite Corpse' project launched by Little Minx (www.littleminx.tv) in partnership with RSA Films. Drawing its inspiration from the parlour game of the same name, 'Exquisite Corpse' comprises of five short films by Van and directors Chris Nelson, Malik Hassan Sayeed, Josh Miller, and Laurent Briet. Through the progression of the films, each director responds to the last line of text of the previous director's script and presents their concept of what it means to be a minx.

"This was a challenging project for us," admits Sabrina Elizondo, Visual Effects Producer at Method. "It was also completely irresistible because the creative leeway we were offered was a unique experience. Just about every live action scene was shot on bluescreen, so defining the look was technically up to our team. The opportunity also lent itself to a close working-relationship with the director, Phil, and that collaborative effort really made a big difference."



Van's film is a compelling and ultimately heart-wrenching depiction of the loss of childhood innocence. The piece opens against a deep blue sky populated with light, waffle-like clouds. As a bespectacled young girl hurls an oversized plastic bone for her dog, a gentle voice sings 'Come Wander With Me' - a melancholy tune with haunting resonance. Sitting quietly on the grass, the suddenly unsmiling young girl sees a watery vision of a man in a suit standing at the edge of the field. As she moves to stand in front of him, the man removes her glasses and tosses them into the grass. He holds out his hand. She thinks for a moment, then reluctantly takes his







hand and follows him into the gnarled forest. A firmly tied rope prevents her dog from following. Sunlight is magnified through her dropped glasses, setting the grass, and her childhood, alight. The conclusion, when it comes, proves as familiar as it is shocking.



According to Visual Effects Leads Andy Boyd and Seb Caudron, the first significant challenge came when creating the ghostly figure of the 'Water Man', who seems to simply pluck the girl from her idyllic environment. Admitting to being influenced by Charles Laughton's exquisite The Night of the Hunter (1955), Caudron and the 3D team were eager to create the Water Man, paying close attention to texture and the look and feel of the water.

"Phillip had this idea of a man made out of water; someone who is not quite there," says Caudron, Lead 2D VFX Artist on the project. "It was essential that he be a palpable presence but also that he seem otherworldly. It was quite a challenge to appropriately balance the real and surreal worlds."

To nail down a realistic image, the animation team scanned the real life actor into a 3D model, which gave them the man's complete geometry with which to work.

"The 3D model was a huge help," says Caudron. "We were able to apply all our lighting and water effects in a series of layers. The character ended up being very layer-heavy, but it sped things up considerably."

In creating the gnarled and twisted forest that represents the hardships of life, Boyd was apprehensive at first, but quickly became enthused by the challenge. "Forest scenes are notoriously difficult to render, due to all the detail," he explains. "We got so into this project, however, that we started looking for new ways to work and new things to learn. Almost everything was shot against bluescreen, with just a few plants and shrubs around the set, so it was up to us to create the forest. To render the entire thing, I used a system called 'delayed reads.' With the geometry of one 3D tree, we were able to have the system procedurally create unique trees at render time. While 3D trees are typically so dense in information that you can't have more than one open at a time, we were able to render out 100 or so each time. It was tremendously helpful."

Technologies used: Houdini, Autodesk Maya, Autodesk Flame.



About Method

Based in Santa Monica, California, Method is a visual effects artists' studio specialising in the production of digital imagery for commercials, feature films and music videos. More information can be found at www.methodstudios.com.

Credits:

Method Studios

Lead 2D VFX Artist: Seb Caudron

Lead 3D VFX Artist: Andy Boyd

2D VFX Artists: Alex Frisch, Katrina Salicrup, Alex Kolasinski, Sarah Eim, Kyle Obley, Ryan Raith, Zach Lo and Kevin Prendiville

3D VFX Artists: James LeBloch, Rachael Campbell, Jack Zaloga, Chris Smallfield, Seong Joon Lee, Matt Longwell and Felix Urquiza

Visual Effects Shoot Supervision: Alex Frisch

Visual Effects Producer: Sabrina Elizondo

3D Scanning: Eyetronics

Production Company: Little Minx

Producer: Rhea Scott

Creative Director Little Minx Exquisite Corpse: Rhea Scott, Little Minx

Jacqueline Bosnjak & Mark Beukes, IDEALOGUE

Director: Phillip Van



Director of Photography: Darius Wolski

Producer: Kris Eber

Production Design/Art Direction: Regan Jackson

Editor: Ken Mowe

Animatronics/Puppeteering: Eyetronics

Telecine Company: Company 3

Audio Post: Q Department

Exquisite Corpse

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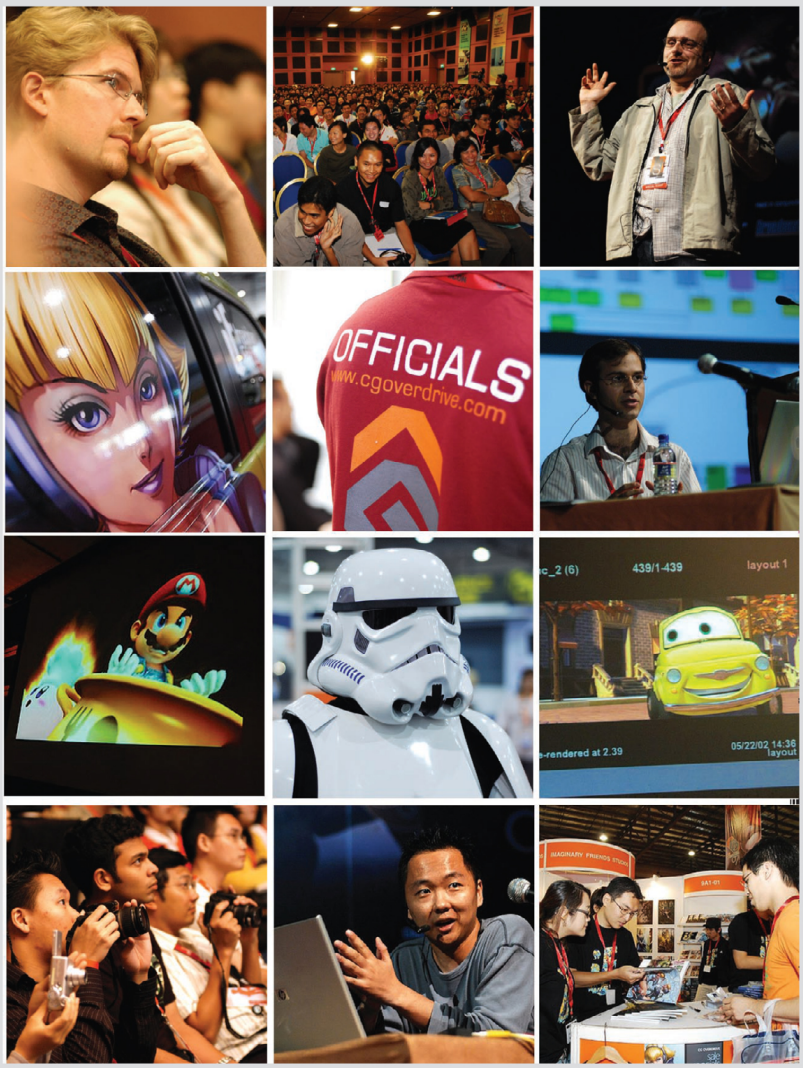
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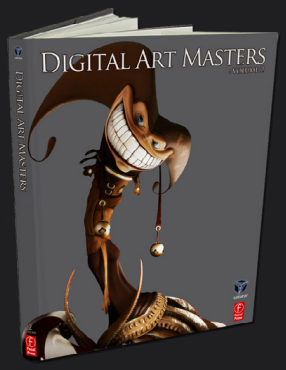
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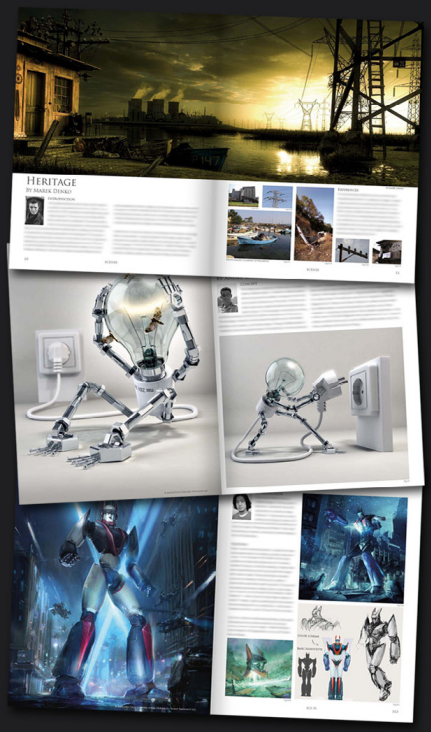
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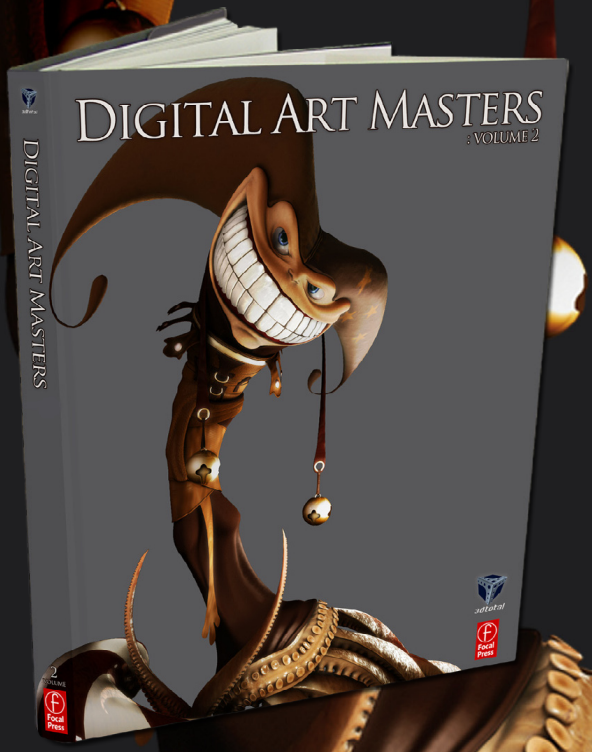
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GALLERIES

This month we feature:

Alexander “shultz” Nadein

Richard Rosenman

Rick Xu (Xu MingJun)

Marco Antonio Delgado

Chris Carter

Piotr Kosinski

Gunaars Miezis

Craig A Clark

Michal Kwolek

Denis C. Feliz





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cg.carter@comcast.net



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Richard Rosenman

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Happiness is Childlike

Michal Kwolek
http://www.kwolek.org
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Bio Vampire Queen

Rick Xu (Xu MingJun)

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If you would like to see how Alexander created this image, make sure your check out the next issue of 3DCreative Magazine!



FIAT DUCATO

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R2-D2

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GRANDMA

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Check out the current **Car Modelling Tutorial Series** in 3DCreative Mag to see Craig's skills in action!

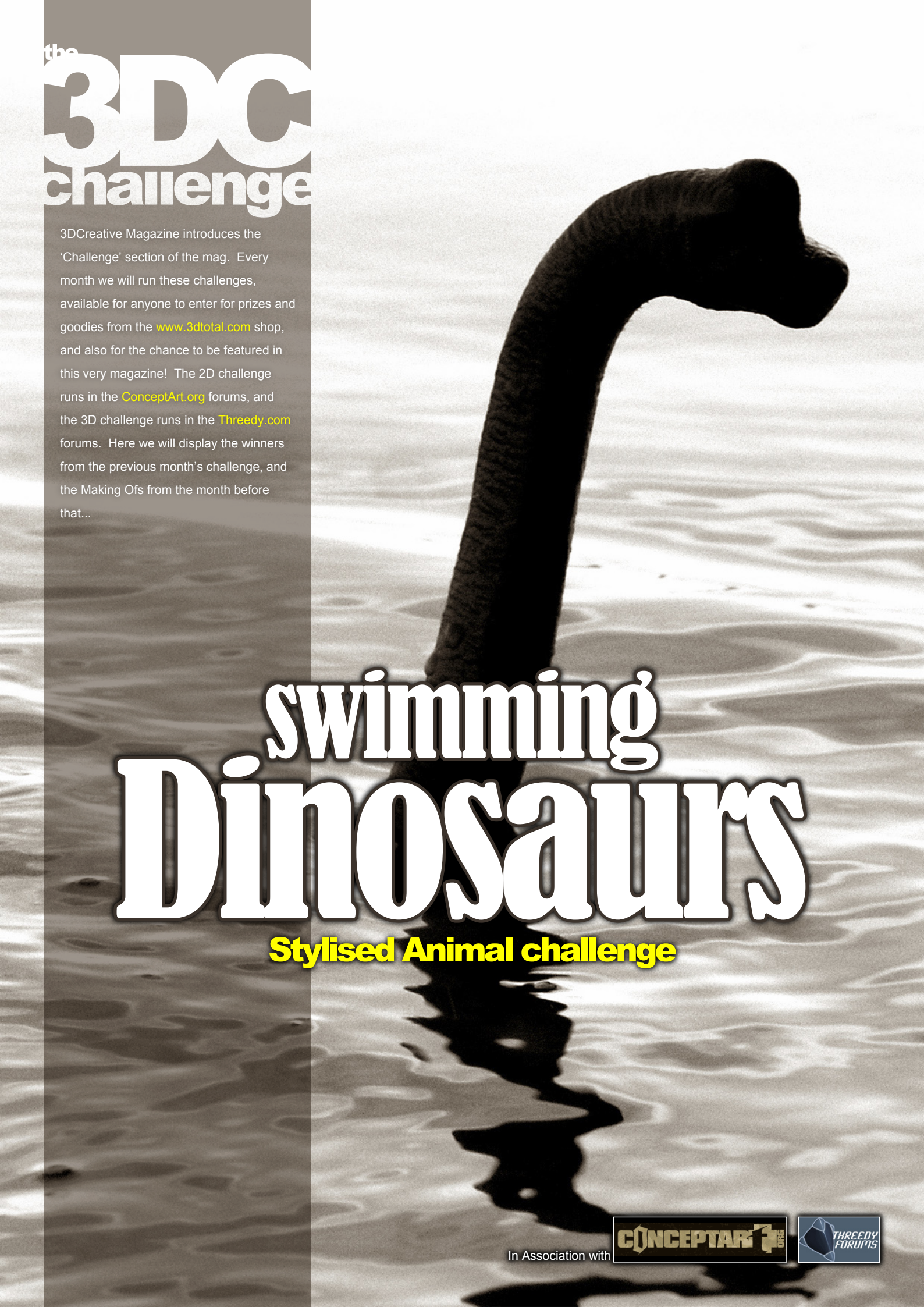
HYPERSHOT

Craig A. Clark
http://www.f-nine.co.uk
caclark@f-nine.co.uk



the 3DC challenge

3DCreative Magazine introduces the 'Challenge' section of the mag. Every month we will run these challenges, available for anyone to enter for prizes and goodies from the www.3dtotal.com shop, and also for the chance to be featured in this very magazine! The 2D challenge runs in the ConceptArt.org forums, and the 3D challenge runs in the Threedy.com forums. Here we will display the winners from the previous month's challenge, and the Making Ofs from the month before that...



swimming Dinosaurs

Stylised Animal challenge

In Association with CONCEPTART.ORG THREEDY FORUMS

Stylised Animal Challenge

Swimming Dinosaurs

The Challenge

Welcome to the Stylised Animal Monthly Challenge. Each month we will select an animal and post some images in the forum thread as reference. All you have to do is to create a 3D image of this creature in a stylised/ abstract/cartoon style, whilst keeping your creature instantly recognisable. We wanted to publish some content in 3DCreative Magazine on how to create stylised animals, such as you see in the many feature films and cartoon galleries. We thought this regular competition might bring in just the images and Making Ofs that we need, whilst giving away great prizes and exposure. If it's successful, we will try to boost the prizes up as much as possible! This month's animal was Swimming Dinosaurs! Here you can see the top 8 entries, as voted for by the public.



8TH - YamFries



8TH - CMarcus

http://creamstudio.free.fr/site1
marccousin7@hotmail.com



8TH - IanChaos



7TH - Siege



7TH - Gune

www.bugshub.de
micha@bugshub.de

What are we looking for?

Funny and humorous entries which break the animal down to its most recognisable components; emphasise these in whichever ways you think best, and render your stylised/



6TH - GRAFIXSUZ

www.wrbcreations.com
grafixsuz@gmail.com



4TH - NOVISKI



5TH - EVOLUTION

stephenperona@gmail.com



3RD - DADDYDOOM

pedroldaniel@gmail.com

abstract/cartoon masterpiece. The rules are pretty laid back: please submit 1 x 3D render (minor post work is OK); it's up to you if you want to have a background or if you want include some graphical elements or text on your image. Renders of the 800 pixel dimension sound about right, but the winners will be featured in 3DCreative Magazine, so if you can create some higher resolution images too, all the better! There will be one competition per month, with the deadline being the end of the month (GMT). For a valid entry, just make sure your final image is posted in the main competition thread before the deadline. We require the top 3 winners to submit 'Making Of' overview articles that will be shown on either 3DTotal.com or in 3DCreative Magazine. These need to show the stages of your creation, different elements, and some brief explanation

text of why, and how, you did what you did. We will format this into some nice-looking pages to give you some great exposure, and us some quality content. Each competition will have one main thread which starts with the brief at the top. All entrants should post all WIPs, give feedback, and generally laugh at the crazy ideas that are emerging each month!

CHALLENGE THREAD

The entire SWIMMING DINOSAUR competition can be viewed **here**.

The current challenge at the voting stage is: DRAGONS!

The current challenge taking place is: 'BULL IN A CHINA SHOP'.



2ND - JIZRIK

jirka_siska@yahoo.com



1ST - STROGGTANK

www.zigrafus.com
mxstrogg_tank@hotmail.com

To join the next challenge, or to view previous and/or current entries, please visit:
www.threedy.com

Or, for the 2D challenge, please visit:
www.conceptart.org
Or contact: **lynette@zoopublishing.com**

2D CHALLENGE

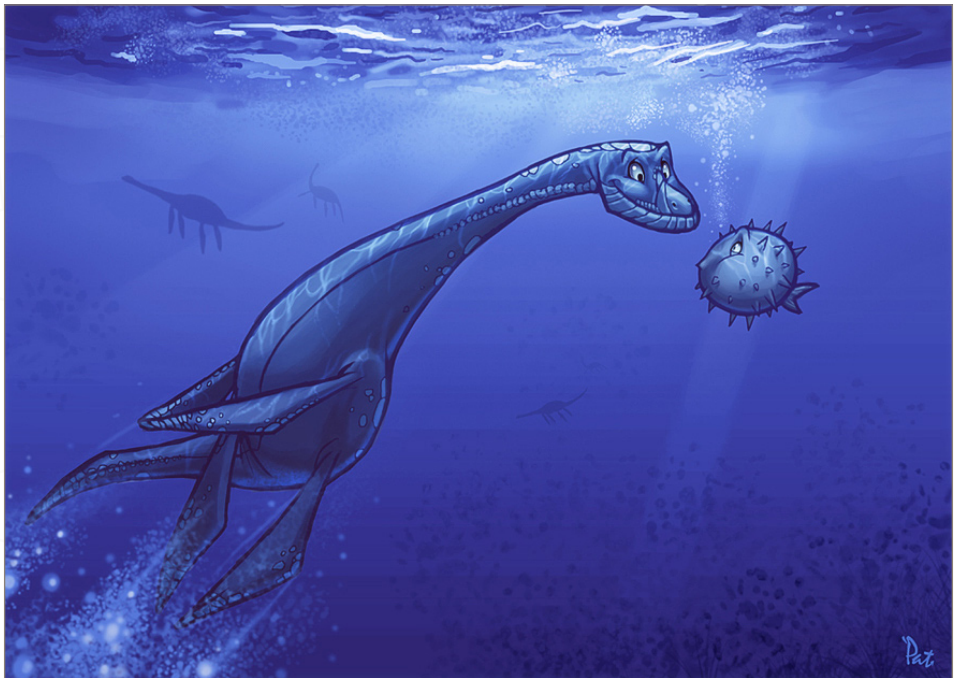
Here are last month's top entries from the 2D competition...



3RD - LINBAR
http://chengshuwan.deviantart.com



2ND - MONSTERTREE
http://www.monstertree.blogspot.com
george@monstertree.com



1ST - CHUCKMATE
http://community.imaginefx.com/fxpose/chuckmates_portfolio
pat2003b@yahoo.com



MAKING OFS!

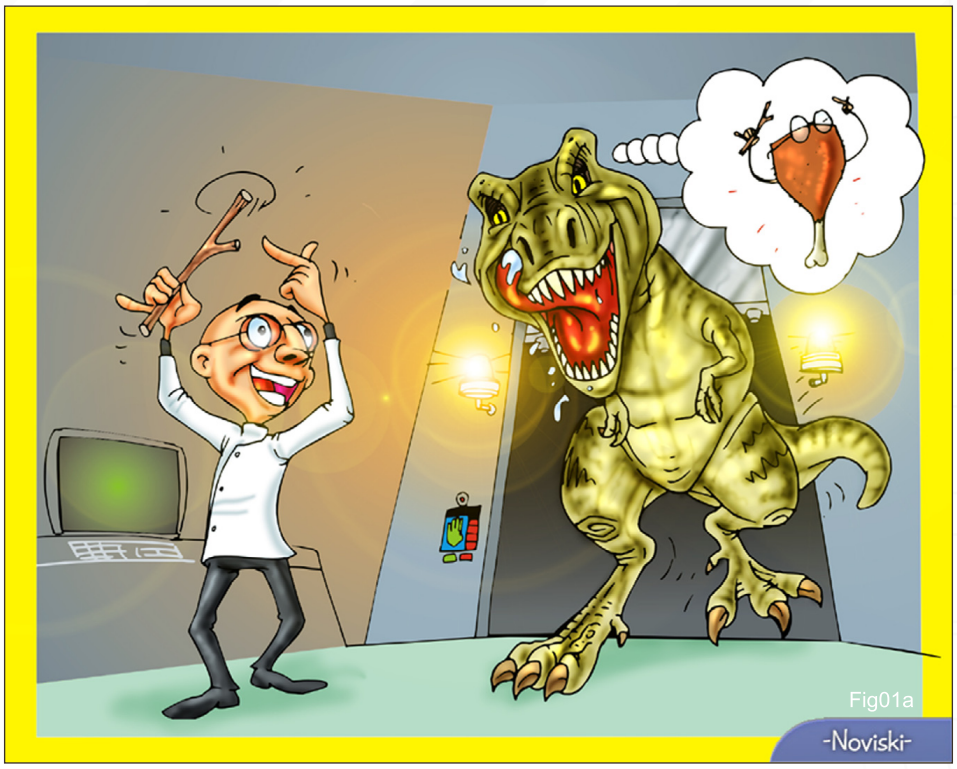
Here are the Making Ofs from last month's top 3 winning entries...

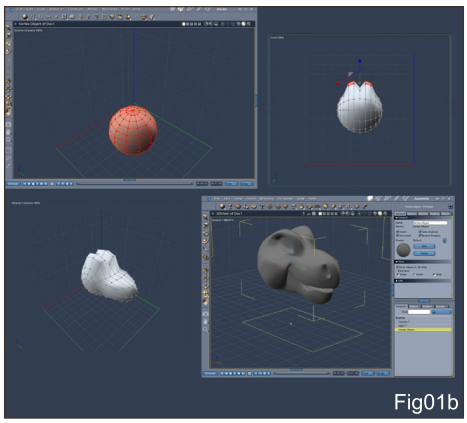
3RD - NOVISKI

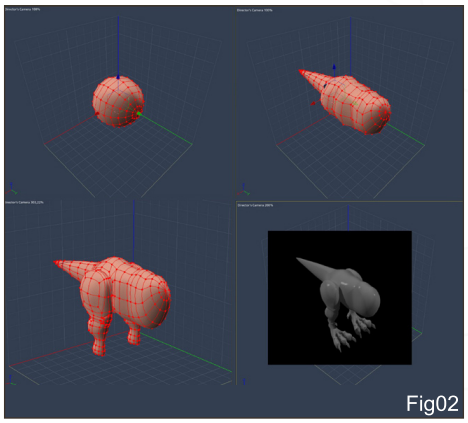
The basic idea was a bad experiment in a science lab (**Fig01a**): an ambitious scientist trying to domesticate a T-Rex, but forgetting about his natural diet!

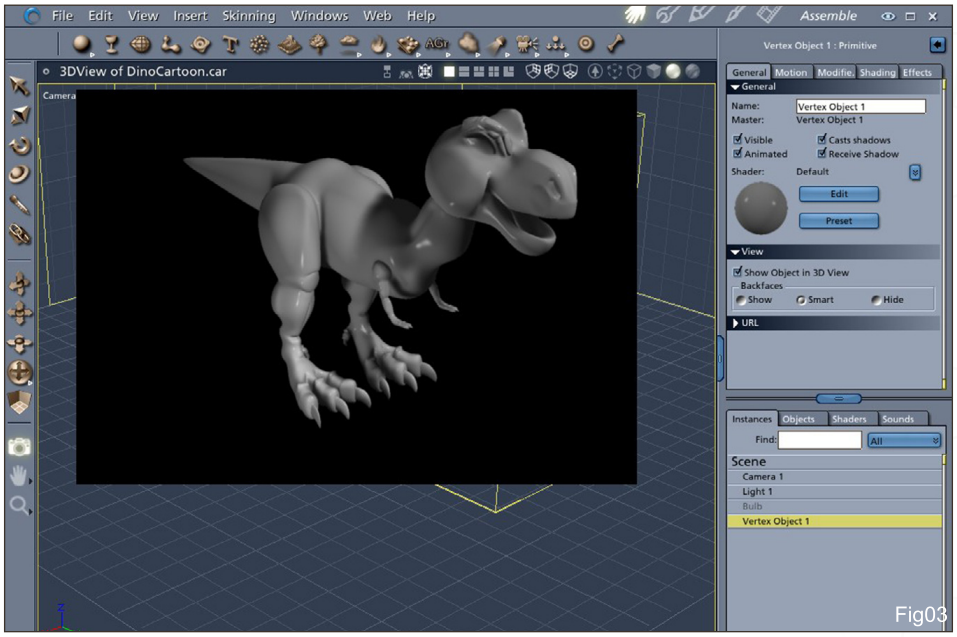
I started with the dino, using vertex modelling in Carrara 5 PRO. The head was made from a basic primitive sphere. Using the Dynamic Extrude tool I added some points and vertexes. In a short while the head started taking form (**Fig01b**). The body followed the same method. Carrara is a very easy 3D tool for this kind of modelling work (**Fig02**). After the adjustments to the mesh, I simply attached the head to the body. Eyes and teeth were also spheres (**Fig03**).

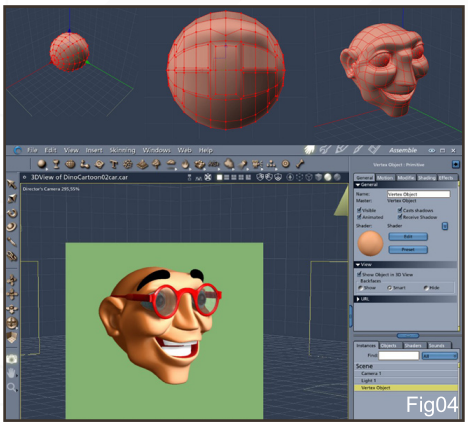
I then started work on the scientist, using the same technique. I gave him some glasses for that "nerdy" look, and tested some shaders. I only used procedural shaders from Carrara on the model, which is a very nice and flexible feature of this software. Bitmap textures were only used on some of the props in the scene (**Fig04**).










Fig04

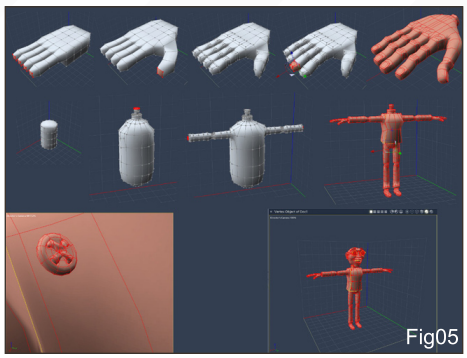
I modelled the scientist's hand using the famous box technique. The body came from a primitive cylinder, using the Extrude tool. Using this method, models are very fast to build in Carrara! I added some details, like the buttons on the jacket, then attached the head. The scientist was then ready for (to be) lunch! (**Fig05**)

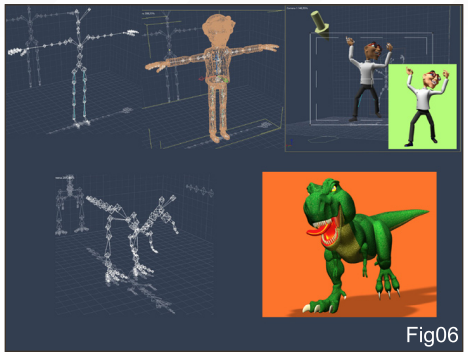
Carrara has a very cool bones system, so they were very easy to build. I have some skeletons – in a library – ready to use, in a few categories: humanoids, bipeds, four-legged creatures and birds. After importing the skeletons into the scene, and simply moving the bones according to the models, I was then ready to attach the skeletons and the models were ready for test poses! With the T-Rex, the skeleton was a biped type from my library (**Fig06**).

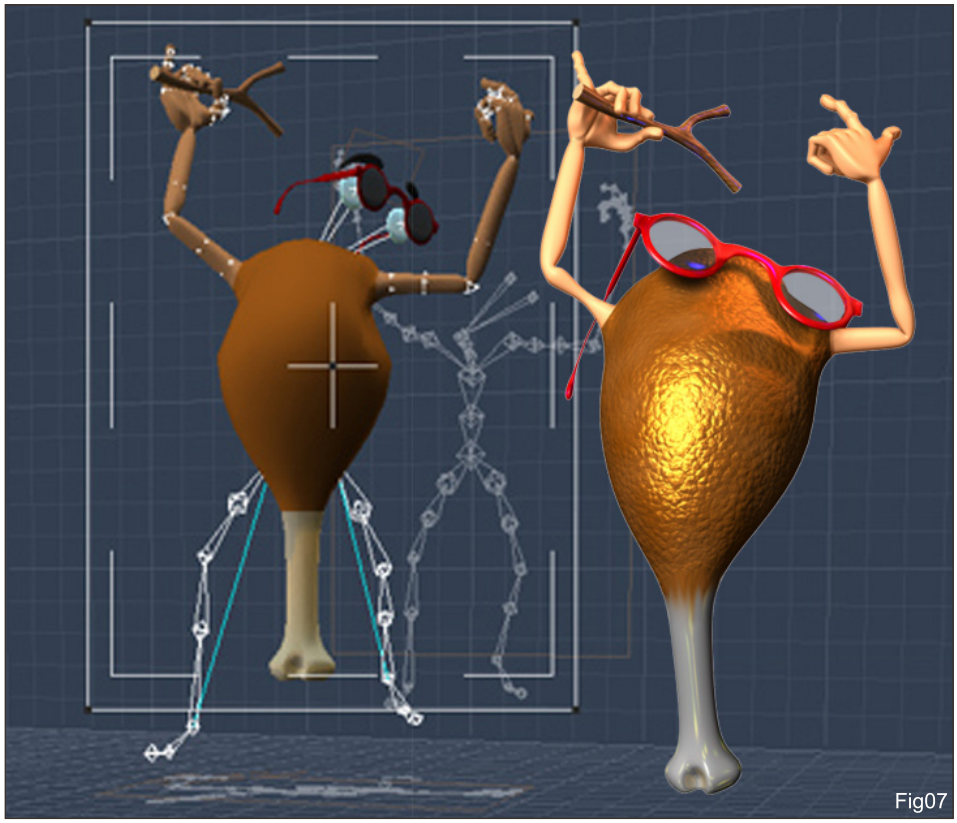
For the dinosaur's thought bubble, I used the same skeleton for the scientist, but simply

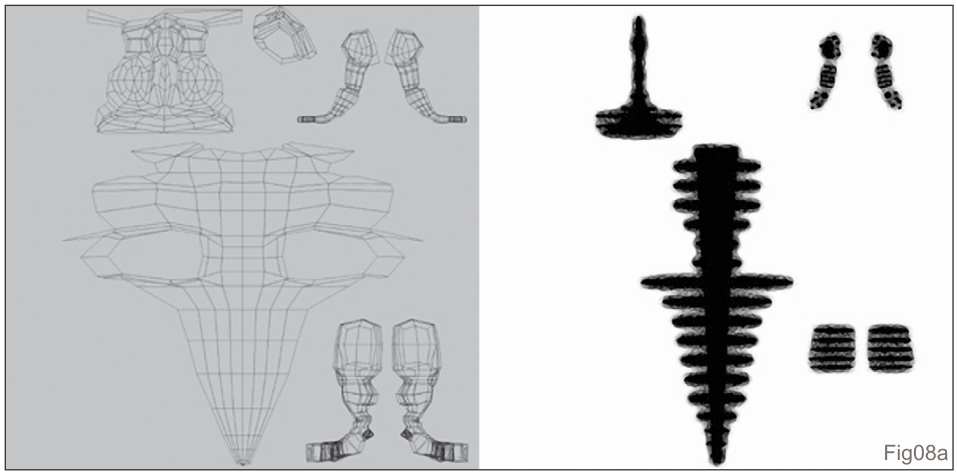


Fig08b


Fig05


Fig06


Fig07


Fig08a

changed the mesh. This element would therefore need to be rendered separately, and then added to the scene in Photoshop, in post-production (**Fig07**).

For a good dinosaur skin, I mixed two procedural shaders with a texture map channel (**Fig08a**). A basic cellular shader from Carrara in the bump channel created the reptile look for

the skin. The textures for the monitor and the door lock were created in CorelDraw and Adobe Photoshop (**Fig08b**).

Putting all the props and characters into the scene is very easy in Carrara. With the camera preview I can see the position of the lights and very quickly adjust them (**Fig09**).

And the final result, with Photoshop pos-production work: 'Lunch is Served'. Thanks to the 3DTotal staff and forum members for their support!

NOVISKI

For more from Carlos Alberto Noviski, please contact him:
noviski@pop.com.br

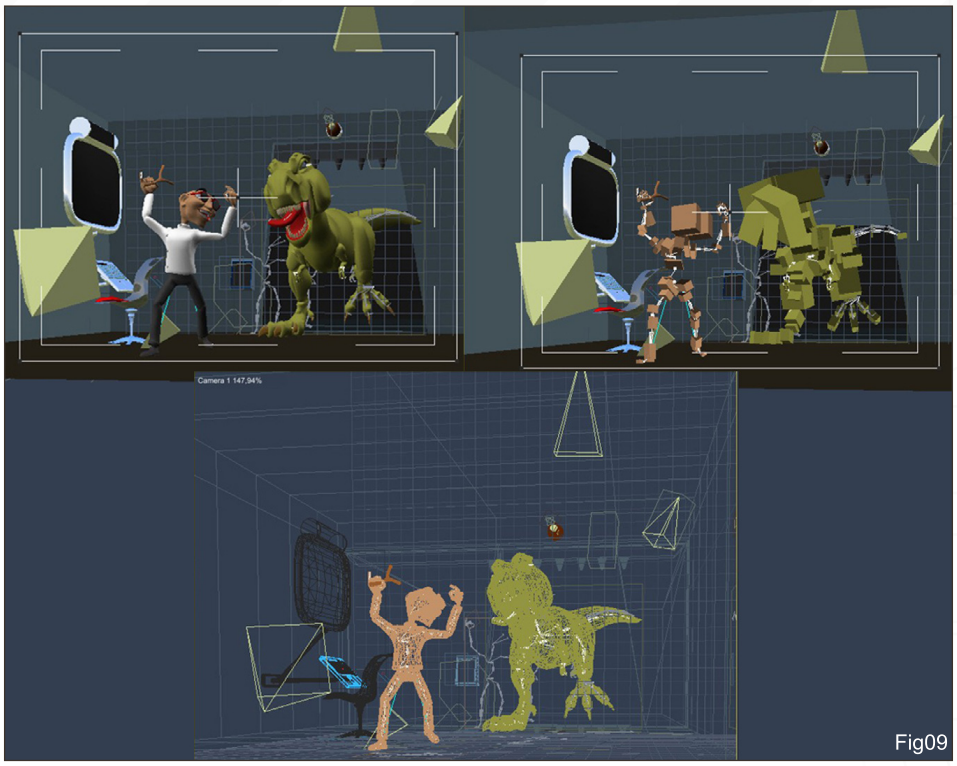


Fig09



2ND - SIEGE

CONCEPT

One thing that's great about having kids – besides the obvious – is the incredible amount of resources that you attain by purchasing children's books! I cruise the used bookstores looking for anything that strikes my eyes. Sometimes I listen to my kids and buy what they would like, but I always keep a lookout for any great storybook artists. So, with this, I was able to pull out a bunch of dinosaur books and just start sketching some T-Rex's (**Fig01**).


Fig01

As far as a concept for this one, I had none. I knew I wanted a T-Rex, so I just jumped in started building. Forget the concept – save it for later! Although, this could come back and haunt you...

MODELLING

Modelling was done in ZBrush. ZSpheres are just incredibly easy to quickly get a form together. I've also used 3ds Max, but the process is so much quicker in ZBrush! Once I got a form that was close to what I wanted, I converted it to a PolyMesh to begin the next step (**Fig02** and **Fig03**).


Fig02


Fig03

With the Polymesh, I used the Move tool to push and pull it further. Then I stepped up the sub-division, while continuing to refine the mesh. I used the basic brushes in ZBrush, along with a couple of standard Alphas. I sub-divided T-Rex 6 times to 2.5 million polygons (**Fig04, Fig05** and **Fig06**).

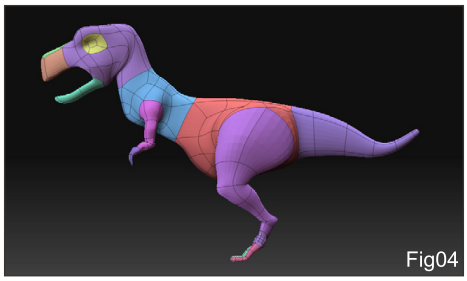

Fig04


Fig05


Fig06

I went back and forth between the sub-division levels during the texturing phase, and textured it simply using ZBrush, stepping up the sub-division whilst adding more detail (**Fig07** and **Fig08**).

I then used the Transpose feature to move and place it in its current pose. Transpose is good when you don't want to do any rigging, and since this was a one-shot image, it was a great time-saver! (**Fig09**)

At this point, I had to make the eyes, claws, teeth, tongue and the rock that he was to be balanced on. I used ZSpheres to quickly create the

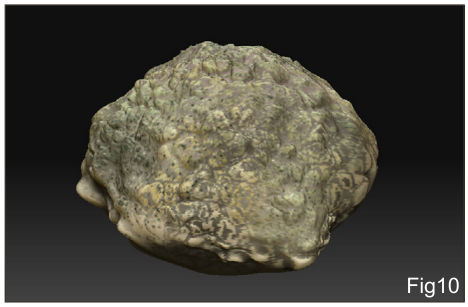
teeth, convert them to PolyMesh, re-imported them into the T-Rex file, then started placing them in the correct area. I did the left side of the lower jaw first, then mirrored it to the right side. I did the same with the upper teeth (next time I will be sure to do this *before* I pose the character, as I wasted a lot of time placing the mirrored teeth after I changed the symmetry of the T-Rex). The claws followed the same workflow, as did the tongue. The rock was a ZSphere beat up and bruised into something that looked like a rock. I quickly painted some colours until I got something that looked right. I used the Mask by Cavity feature to easily dirty things up a little. I imported an eye which I created for an earlier dinosaur (**Fig10, Fig11, Fig12** and **Fig13**).

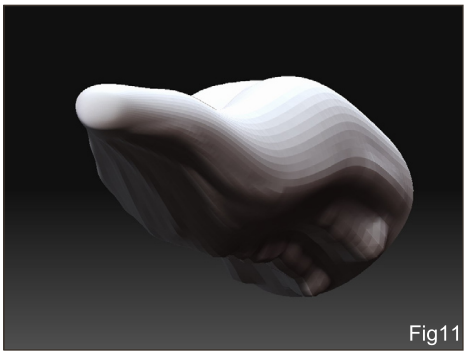
Then came the time for the rendering process. I used the multitude of material presets that come with ZBrush. I first chose my camera view, then selected various materials and rendered them out. Once I was done with that, I imported them


Fig07


Fig08


Fig09


Fig10


Fig11

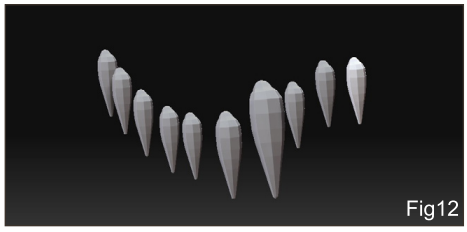

Fig12


Fig13


Fig14

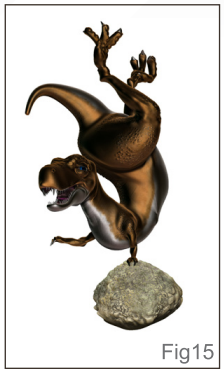
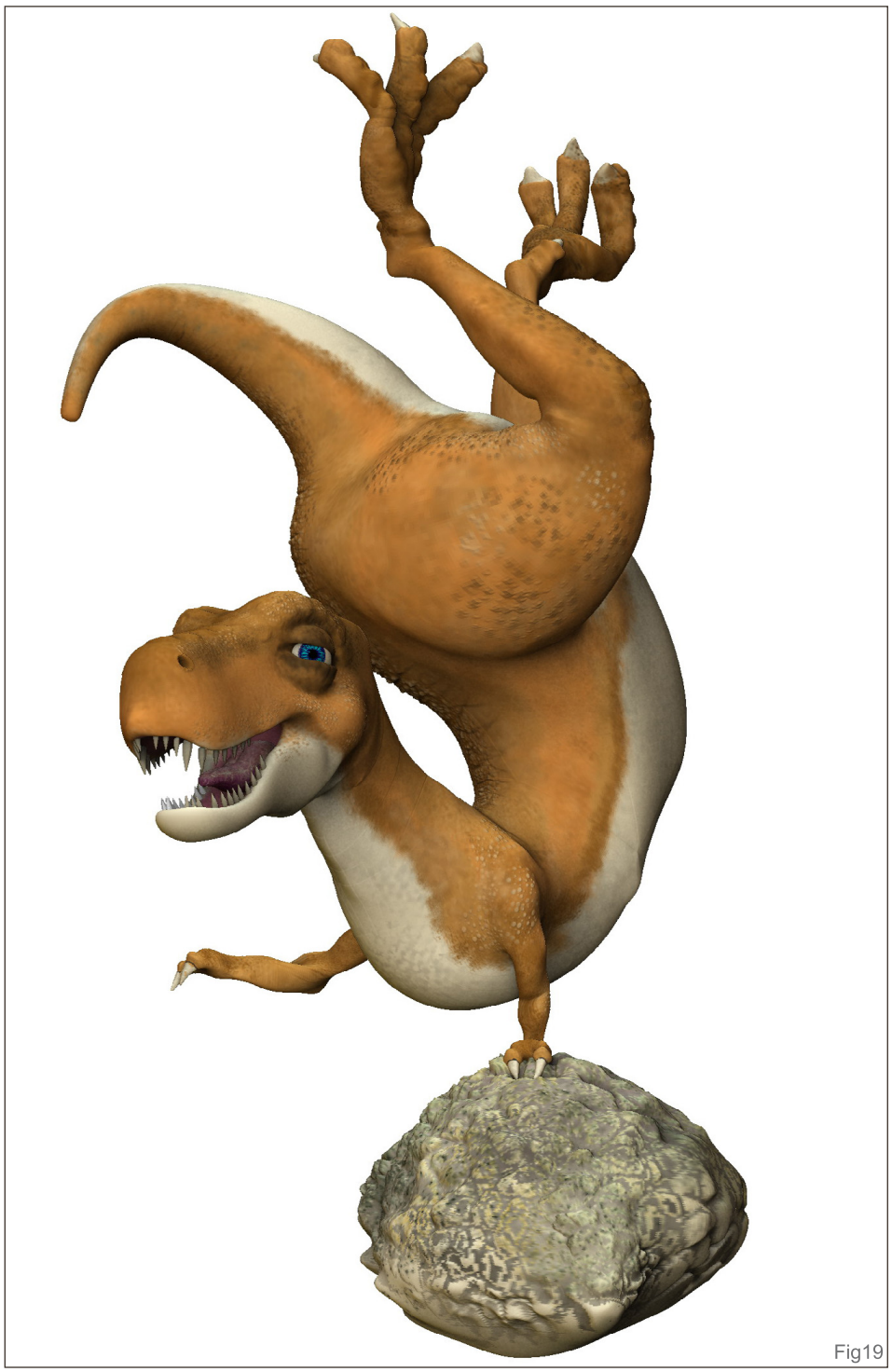

Fig15


Fig16


Fig17


Fig18


Fig19

into Photoshop and stacked them in layers. There I could choose and adjust certain ones that worked. I could also use the Quickmask tool to adjust certain areas. Once all the fine-tuning was done, I collapsed the layers and was ready for the touch-ups.

With the model being at a somewhat low sub-division level (my computer wouldn't let me get beyond 6 sub-division levels without slowing me down), I was left with a lot of artifacts. So, in Photoshop, I went over these areas and smudged them. I didn't worry about lighting too much – I just wanted to get something I could work with and that could be fixed by taking it into Photoshop. I added highlights for the eyes, lightening and darkening it in certain areas. I made any changes that were necessary, so as not to have to fight the renderer to get what I wanted! (**Fig14, Fig15, Fig16, Fig17, Fig18** and **Fig19**)

The background was the last step, which was quickly thrown together and put in.

And there it is!

Thanks for these competitions. They are a perfect way to learn and grow in 3D, with lots of great feedback and good critiques in the forum. And I also enjoy watching others' workflows through to the finished images.

Chris Lubitz

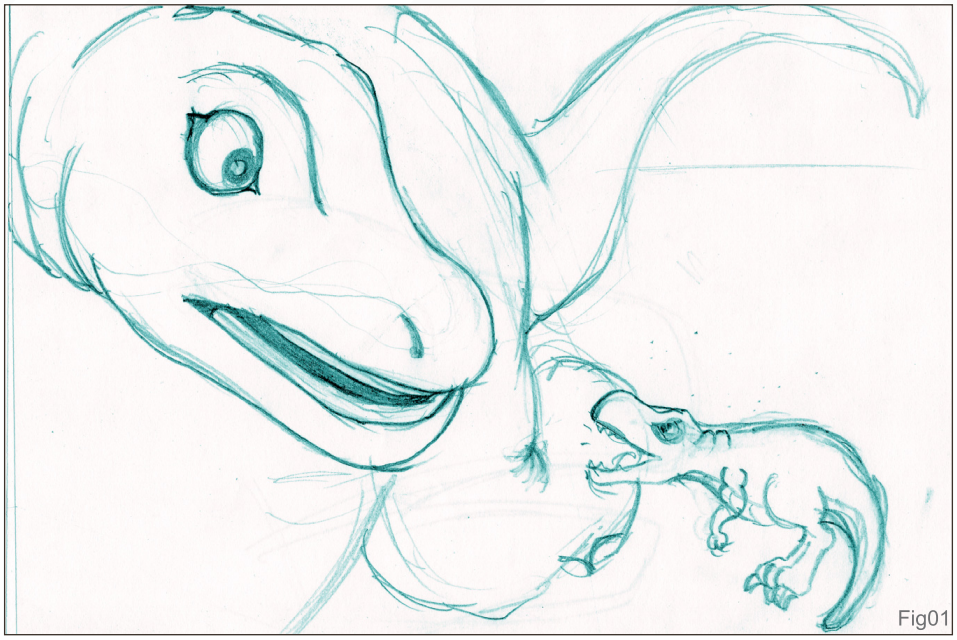
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mailforsiege@yahoo.com



1ST - ALOALVAREZ

CONCEPT

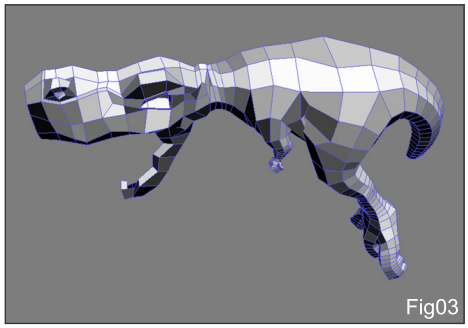
The first idea I had for the Carnivore Dinosaur Challenge was an image of a powerful T-Rex dominating the plains of the Jurassic world. My original idea was a huge T-Rex scaring small creatures, as if saying "I'm so bad, ha ha ha!" However, I realised that it wouldn't be so funny for the small creatures, so I decided to make the T-Rex the target of the joke instead! Since it's not easy to joke about a 45-foot long carnivorous dinosaur, I swapped it for a baby T-Rex. This baby is still a little one, but he sees himself as a powerful blood-thirsty predator. This idea came from a tiny dog I had who was physically so small that he could hang from things by his teeth, but he thought he was a Doberman! I made a sketch of the final composition (**Fig01**) and achieved a clear idea of the final image, which saved a lot of precious time.

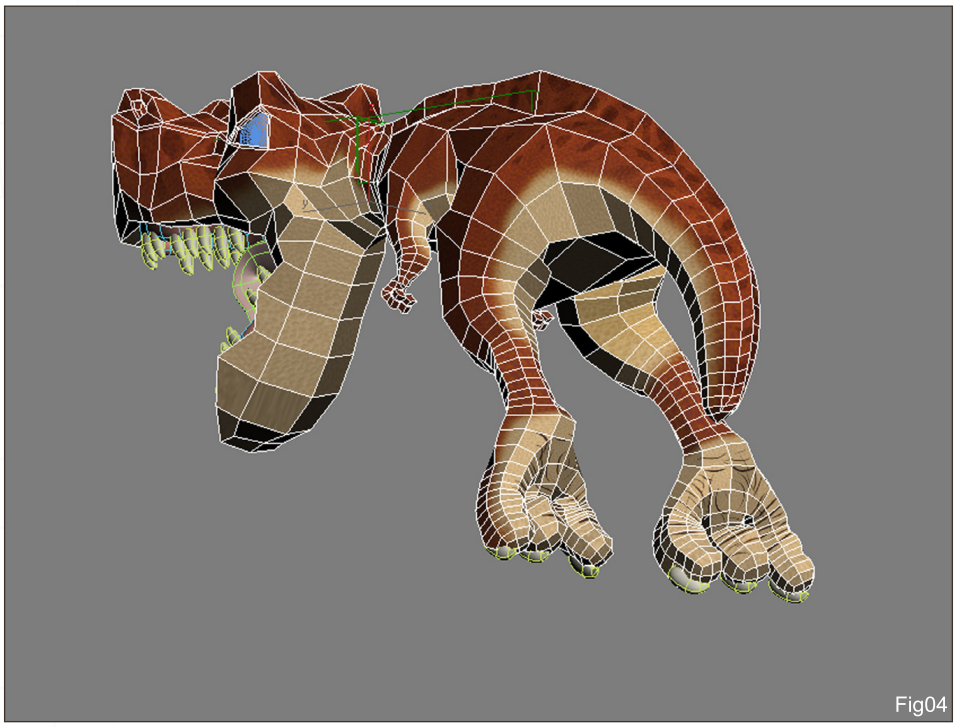

Fig01

MODELLING

Using an Editable Poly, I began working on the baby T-Rex. I started on the head, placed the eyeball inside the head, then worked around it until the result matched my concept. I then modelled the rest of the body (**Fig02**, **Fig03** and **Fig04**). During the whole process I worked on half the character to save time, and for easier modelling, using the Symmetry and Turbosmooth modifiers with the "Show end result" option turned on. Once done, the nails, teeth, gums and tongue were added. I also added two bones into the joint of the neck to achieve the 'hanging on by the teeth' pose.


Fig02


Fig03


Fig04

For the Herbivore, I made the head and neck separately from the body so I could place the head easily in the final composition (**Fig05**). The modelling process of the baby T-Rex was the same as for the herbivore: Editable Poly with Symmetry and Turbosmooth. Since I had a clear idea about the composition, I only modelled what appears in the final image. The body of the herbivore is a very simple shape, with the only special detail being the elephant nails. On the bitten leg, folds in the skin were added where the mouth of the T-Rex would later go.

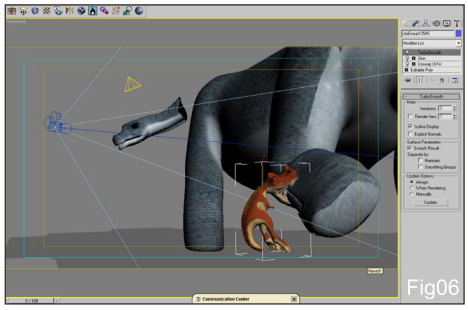
The scenery was kept very simple, with little detail (**Fig06** and **Fig07**); however I always prefer to place images in a contextual scene rather than alone on a blank canvas.

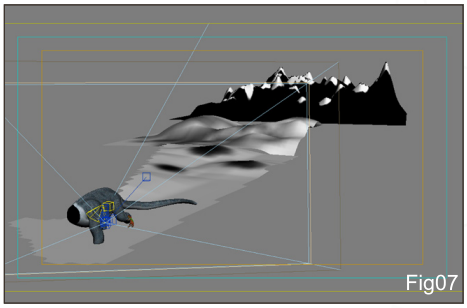
TEXTURING

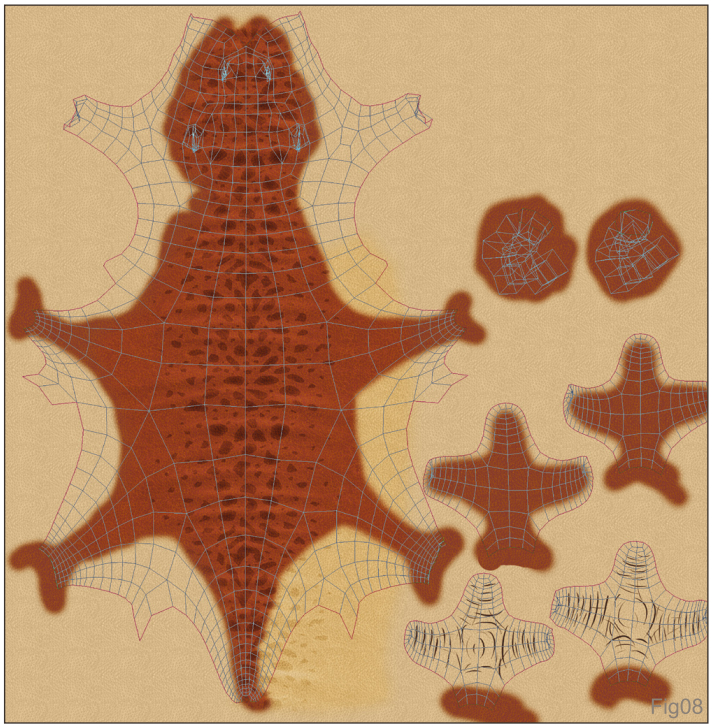
Once the modelling for the T-Rex was complete, I unwrapped the mesh and used vertex paint. I applied a basic hue and the shape of the colour pattern so that, upon opening the mesh, the colouring from vertex paint would serve as guidelines for texturing in Photoshop. Regardless, applying textures nearly always requires trial and error! For the upper layer in Photoshop, I placed the rendered template of the mesh and selected "Difference" as the layer blending mode so I could work with and see the unwrapped mesh at the same time (**Fig08** and **Fig09**). Starting from the unwrapped vertex paint as a guideline, I added alligator skin as well as other reptile skins for the Diffuse map. Stains and folds were also added. Once complete, I started working on the bump map.

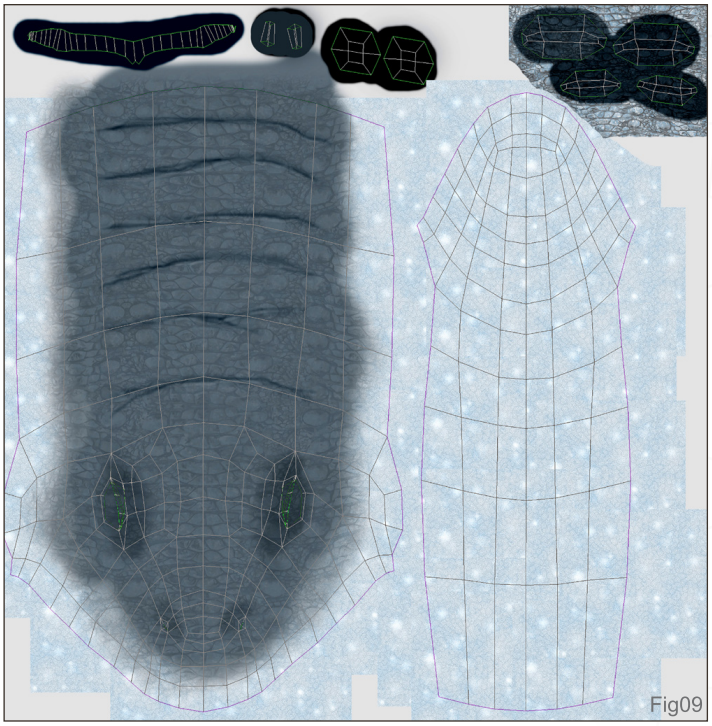
The bump map was a copy of the diffuse layer with the Saturation level set to zero. If any spot were too bright or too dark they were removed, since I didn't want a very rough bump map for


Fig05


Fig06


Fig07


Fig08


Fig09

this character. Later, the specular map was also made, and then I was ready to go! No time for normal maps in this challenge! The floor had only a displacement map, just for adding a little roughness.

For the colour palette, I wanted smooth colours that worked well with each other. For the baby T-Rex, a strong orange was used just to make him visually heavier, to call attention to him and make him the lead focal point.

LIGHTING

The lighting was also rather simple. I used V-Ray as my rendering engine, and an HDR image for the ambient light and reflections. In the eye of the herbivore, one can clearly see the map that was used. For the sunlight, I used two independent lights: one for the general scene and another linked only to the herbivore's head, since I was not pleased with the shadowing caused on the eye from the general lighting. I preferred to render the lights in the scenery separately, for greater control over the final product and in post production (**Fig10, Fig11** and **Fig12**). Above, you can see the two separate images that were later merged in Photoshop: the ambient light and the sunlight.


Fig10


Fig11

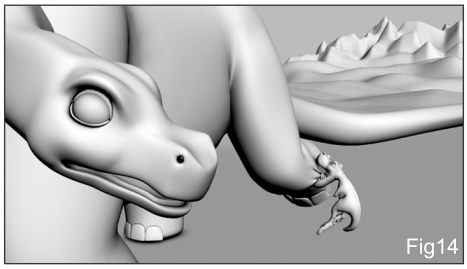

Fig12

POST-PRODUCTION:

The final format of the image is HDTV, to give a cinema-like framed finish. For the final composition, there were 2 Beauty passes (one for the sunlight and other for the ambient light), the Occlusion pass, an ObjectID pass, Specular and an Atmospheric pass (which was just a ZDepth pass using the atmosphere ranges from camera) (**Fig13** and **Fig14**).

The ObjectID pass was used in Photoshop to create an accurate selection mask for each one of the characters, so it was easy to adjust the hue, levels, or any other parameter, separately (**Fig15**). The Occlusion pass was added in


Fig13


Fig14

"Multiply" blending mode at 65% opacity. A general adjustment of Levels, Saturation and Hue finished the post-production process (**Fig16**).

I hope you found the image funny and this Making Of useful! Thank you very much for voting and for your comments.


Fig15

ALEJANDRO ALVAREZ BERMEJO

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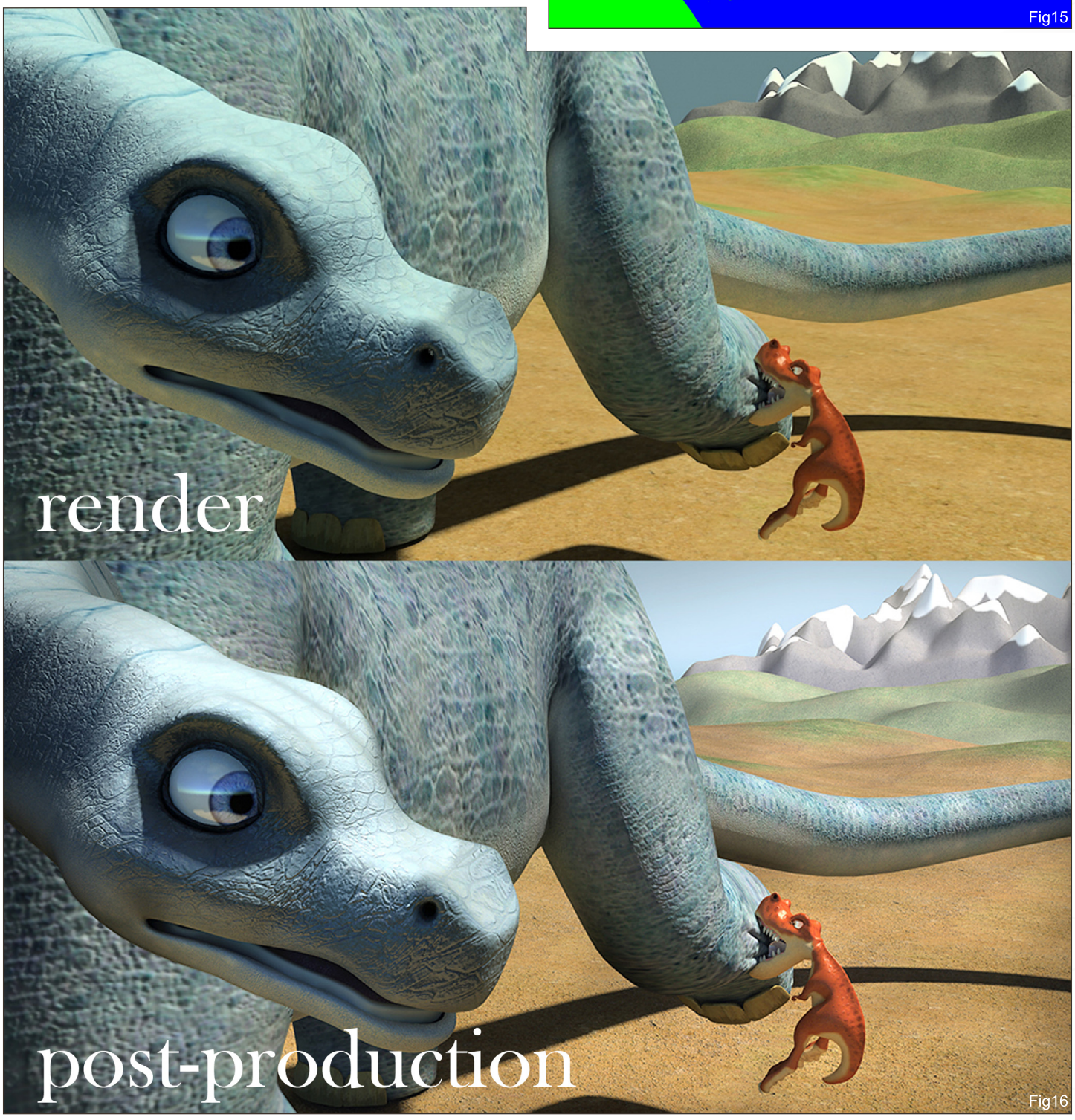
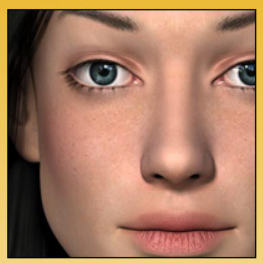


Fig16

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Bugatti Veyron

car modelling series

Over the course of the next seven months we shall be running an in depth tutorial on how to go about creating the amazing Bugatti Veyron. The series will cover an in depth and comprehensive guide to modelling the car from start to finish and will focus on the key techniques and stages invloved in building the chassis as well as details such as the windows, lights, vents, petrol caps and engine parts etc. We will then move on to creating the wheels including tyres and hubcaps before going on to building and incorporating an interior, namely the dashboard and seating. The series will proceed with a section on creating and applying materials for the numerous parts of the car such as the paintwork, chrome, rubber and glass before concluding with a tutorial devoted to setting the scene for a finished render. This final part will cover the importance of a good lighting rig and light parameters, as well as the importance of a camera and the integral part that the rendering settings play in showcasing the model for a portfolio.

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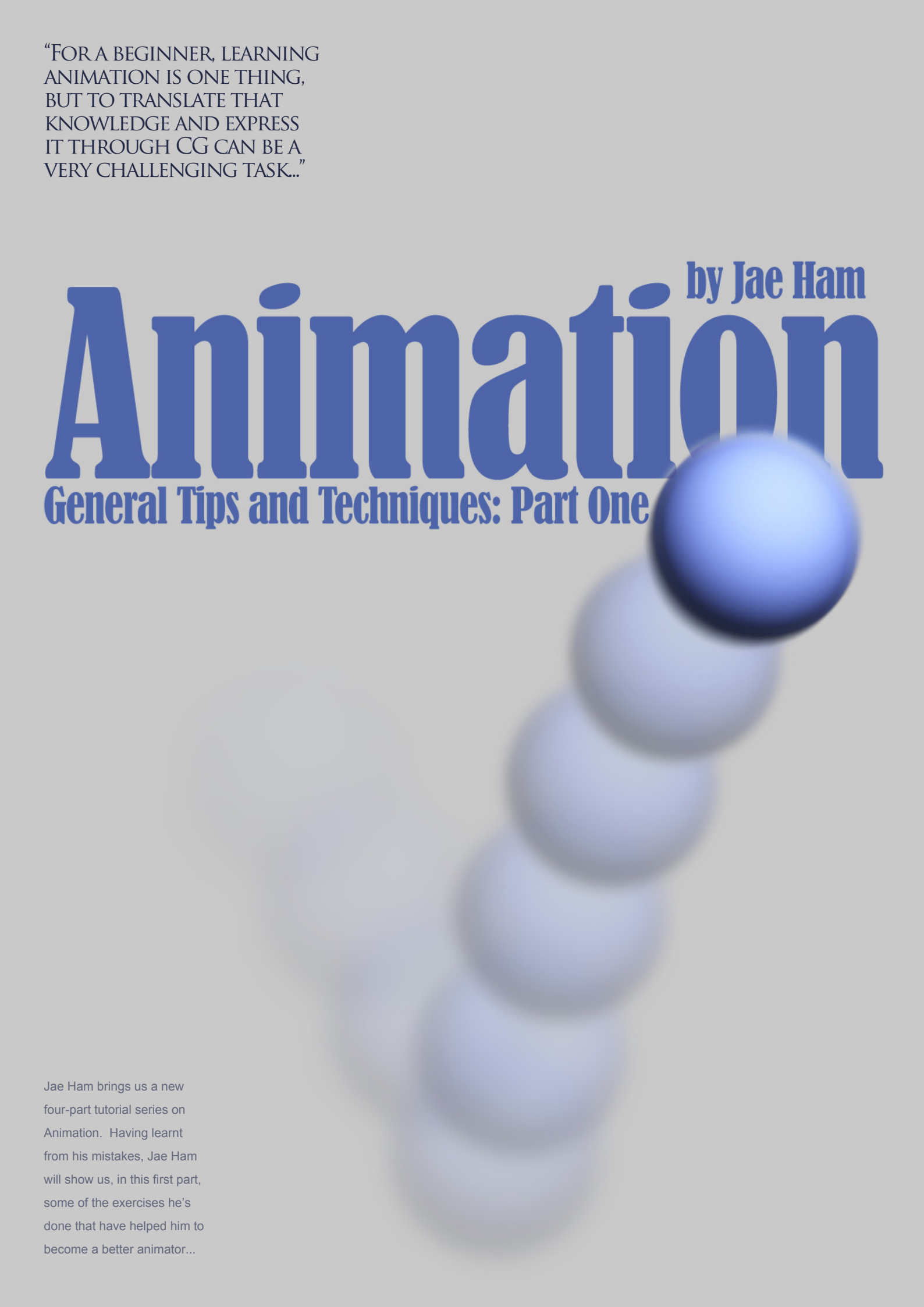
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"For a beginner, learning animation is one thing, but to translate that knowledge and express it through CG can be a very challenging task..."

by Jae Ham

Animation

General Tips and Techniques: Part One



Jae Ham brings us a new four-part tutorial series on Animation. Having learnt from his mistakes, Jae Ham will show us, in this first part, some of the exercises he's done that have helped him to become a better animator...

Animation part 1

Introduction

These days we are surrounded by great animation; movies, shorts, adverts, and even little banners with great timing on websites can strike me and immediately capture my attention! Although these are all truly inspirational, they raise the bar so much that they can also often become a pressure and discouragement for beginners...

For a beginner, learning animation is one thing, but to translate that knowledge and express it through CG can be a very challenging task. So in this four-part animation tutorial series, I will share the mistakes I made when I started learning animation. In addition, I will share the kind of exercises that have helped me the most, and I hope they will prove to be useful to many beginners out there.

Note: This exercise is not specific to any software, so you will be able to follow no matter what application you use!

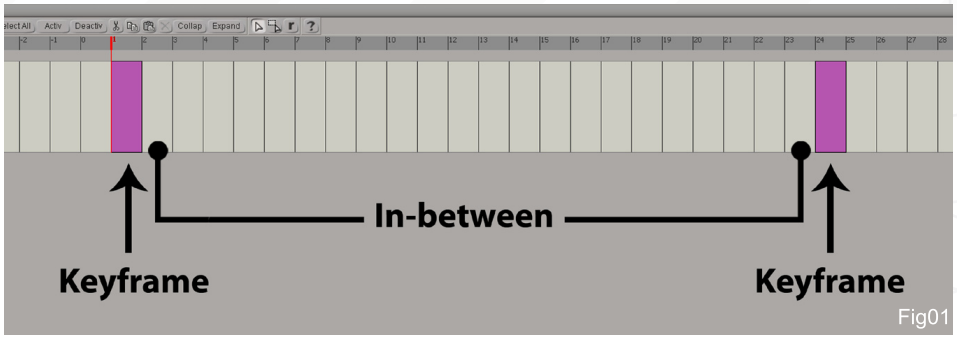


Fig01

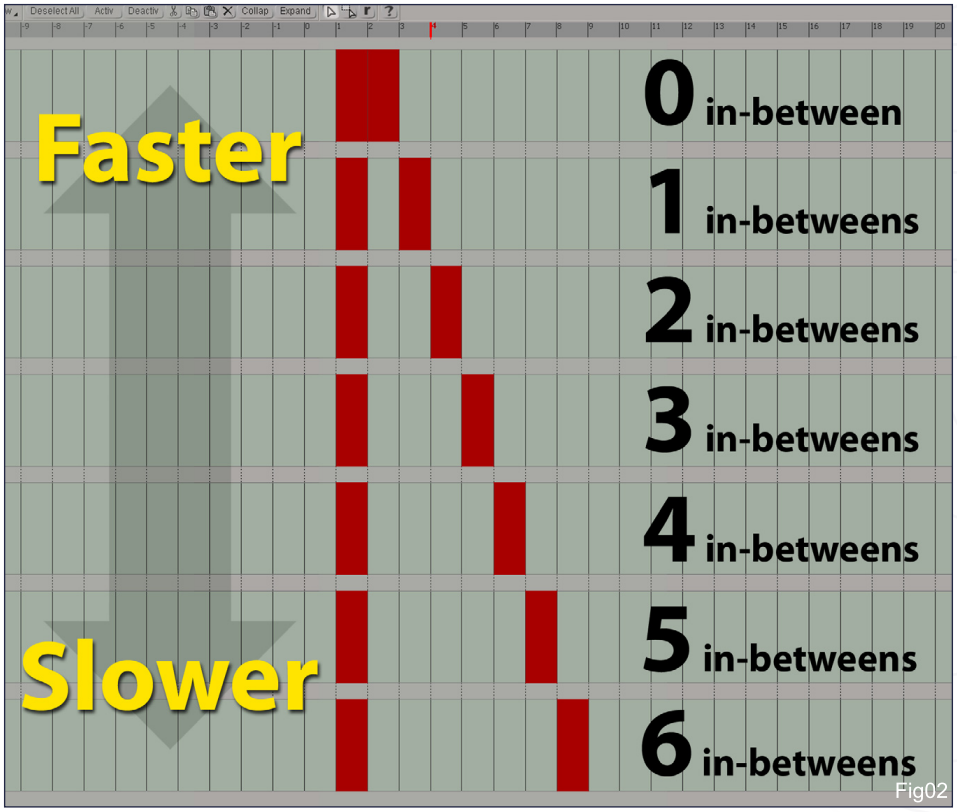


Fig02

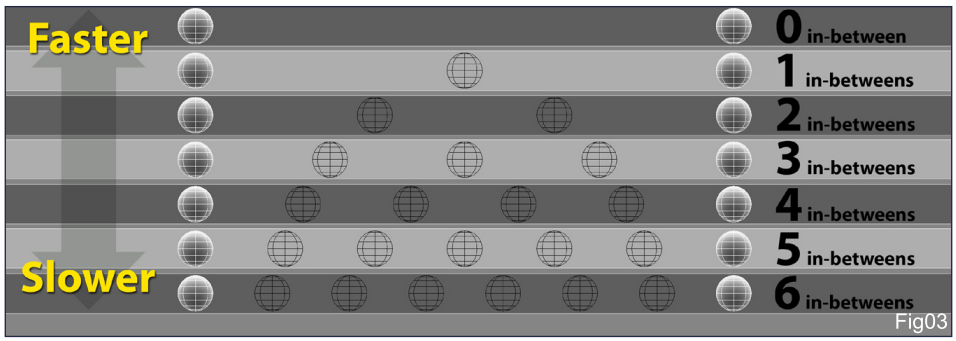


Fig03

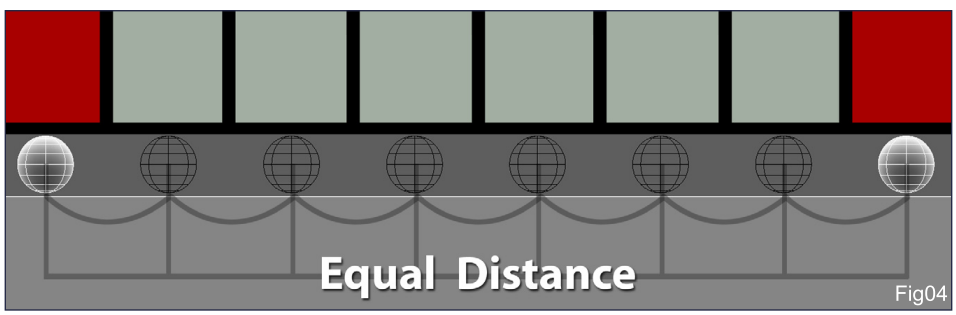


Fig04

To begin, let's keep things simple. Of course, we could just download one of the many pre-rigged biped characters available on the Internet and start animating right away. However, if you are a beginner and you *really* want to learn animation, then I suggest you stay away from them for a while because you can be easily overwhelmed by the amount of keyframes you'll have to set. Furthermore, it's not just about setting tonnes of keyframes, but all of those keyframes have to work in harmony with each other. And so, animating a biped character can quickly become a very time-consuming and challenging task. If we are not careful, we could end up getting lost in the maze of keyframes, and we'll therefore end up frustrated.

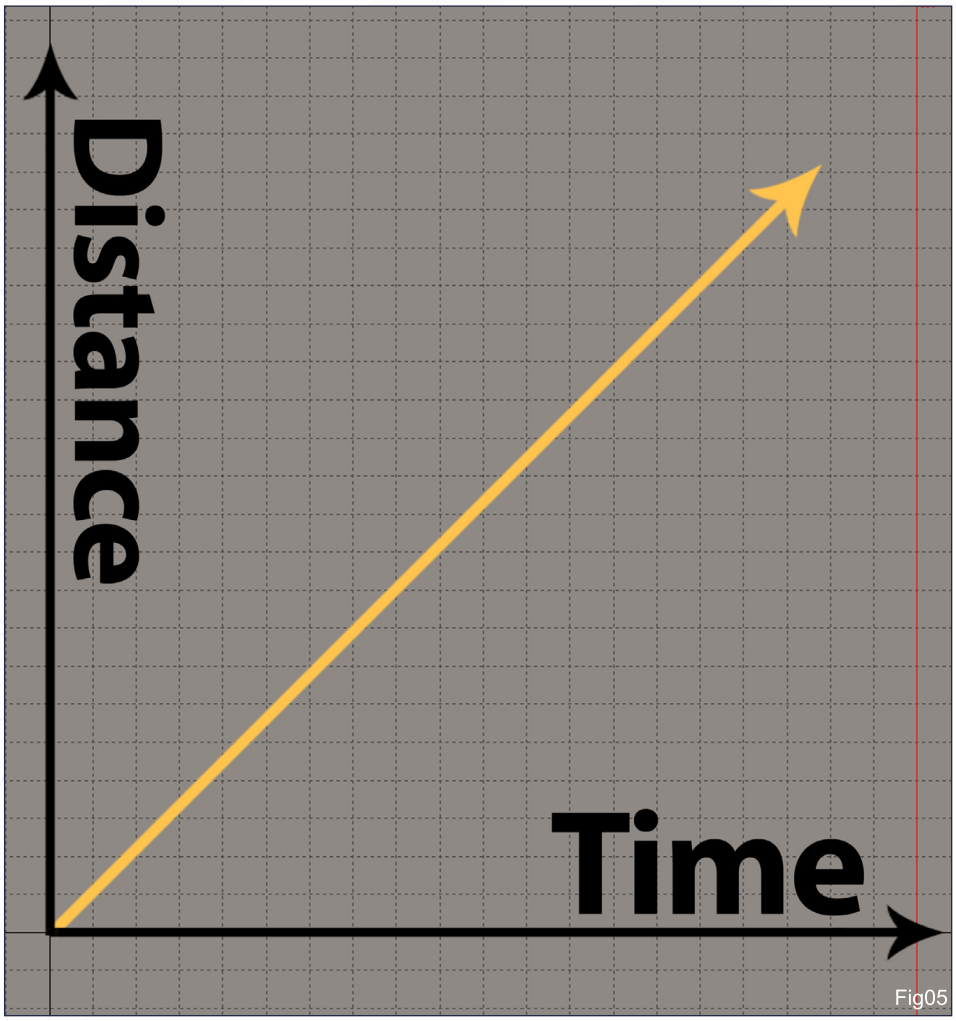


Fig05

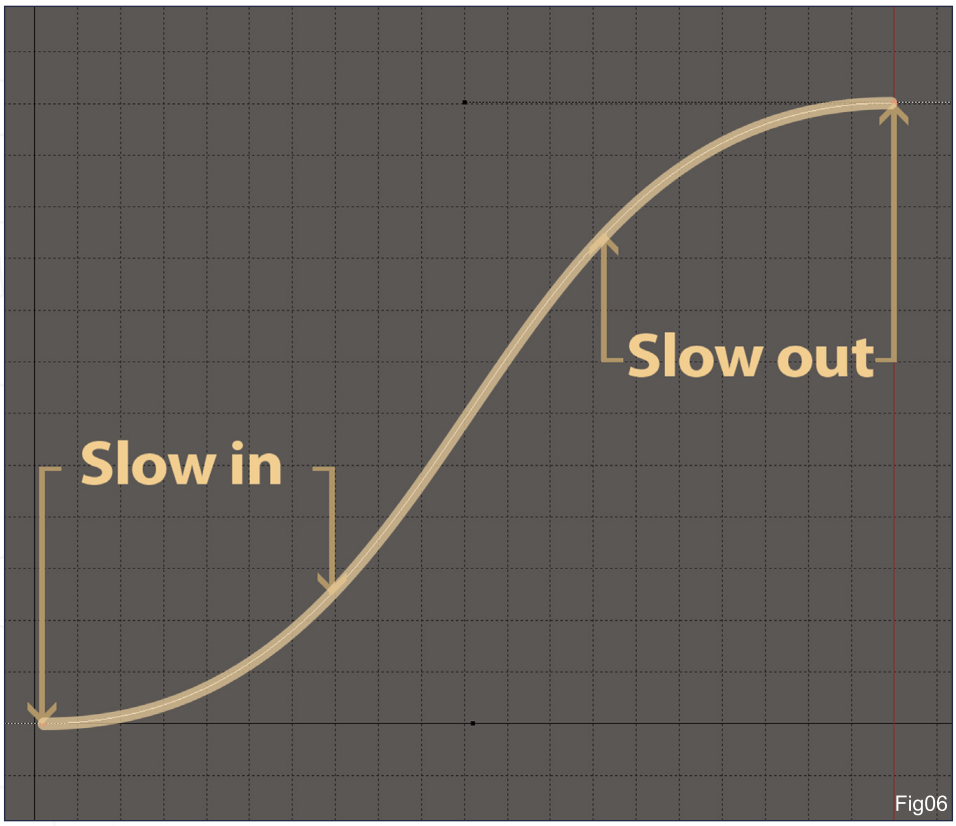


Fig06

This was exactly the mistake I made when I was starting out! Of course, there is nothing wrong with choosing 'walk cycle' as your first animation exercise. However, making that cycle work is much more technically demanding when compared to a regular walking animation. And, for this reason, even some of the master animators I know – who can create some mind-blowing animations – struggle when it comes to doing a walk cycle. Also, without understanding the fundamentals, following complex walk cycle tutorials may not help us as much as a simple one could.

Are you discouraged yet? Never! If we keep it simple and advance just a step at a time, I am sure we can create some mind-blowing animations! So here I urge you once again to keep it simple. Instead of jumping right into it and trying to make a full walk cycle, let's break things into smaller parts and study them more closely. Then we'll put them all together at the end. So, by the time this series is over, we can put all our knowledge together and create some beautiful animation work. So let's get started!

Since this is the first in the series, I would like to leave all the technical stuff aside for the time being and simple talk about three of the animation principals that all beginners should know.

Exercise 1: Play with the Keyframes & "In-between" Frames

Over the years there have been many animation exercises which I have found to be very useful, and from which I have learned so much. 'Bouncing ball' is definitely at the top of that list! So, if you haven't tried it yet, I strongly recommend it! As you start setting keyframes, you will start to feel the timing and the motion that the keyframes create. As you develop this sense of timing, it will become part of your animation vocabulary. You can then convey not just the weight and speed of an object, but also the emotion and all of that magical

characterisation needed in making the inanimate objects come alive.

We should not limit ourselves to ball bouncing though, and we should try to move the ball around freely in any way we want, by setting keyframes. While you are doing this, it is very important for you to watch the number of "in-betweens".

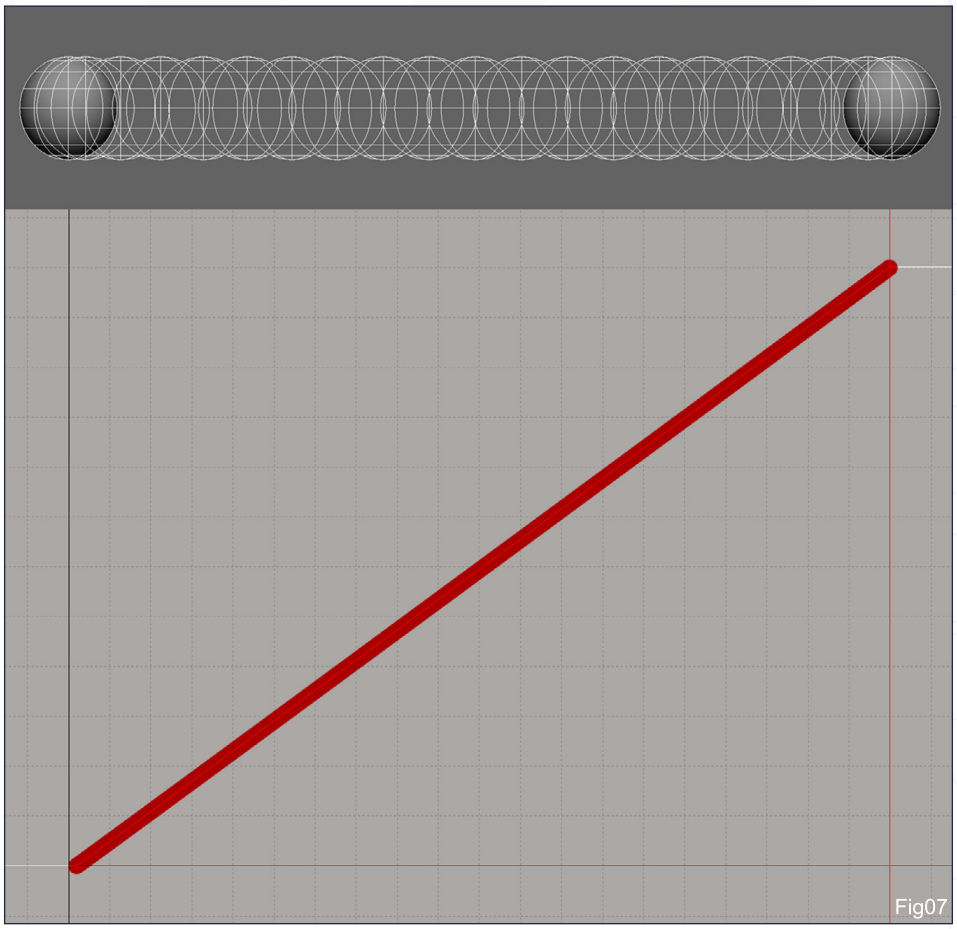
As you can see from **Fig01**, "In-between" simply means the number of frames between the keyframes. Varying the number of in-between frames would therefore affect the speed.

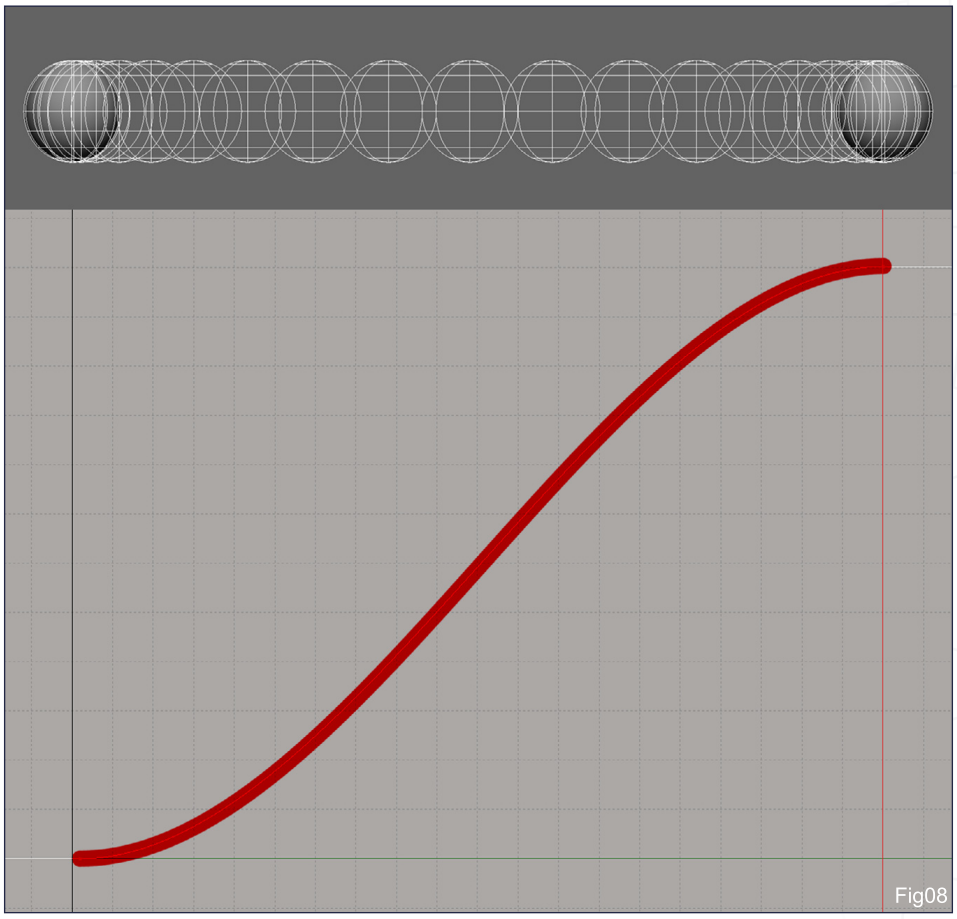
Try from zero in-between frames up to 10 in-between frames, and see how they feel. If you play with them for long enough, you'll be able to naturally pick how many in-between frames you'll need for any motion you have in mind – as naturally as remembering a note on piano (**Fig02**). So let's play with some keyframes!

Exercise 2: Play with the Curves

Now that we are comfortable with moving objects at different speeds, let's look more closely at their movement. If you look at **Fig03** closely, you will notice that the spacing between the each frame is equal. This means that the sphere is travelling at constant speed – no acceleration or slowing down. If this is type of motion we are looking for, it's great! However, in reality, it's hard to think of anything that moves like that and this is why we have to think about a "slow-in and slow-out" arrangement (**Fig04**).

By using "slow-in and slow-out effectively", we can further enhance the illusion of the weight and speed of the object that we are animating. In hand-drawn 2D animation, "slow-in and slow-out" means more drawings. However, for us lucky 3D animators we can easily experiment with this because they are automatically generated, based on the spline curve (**Fig05** and **Fig06**). So let's play with spline curves!


Fig07


Fig08

From the following examples you will see that you can create completely different motions by altering the splines alone.

Fig07 is what we discussed earlier. As you can see from the visualised motion in the top portion, the linear curve creates constant flat animation. Unless this is what you are aiming for, we should avoid this kind of movement!

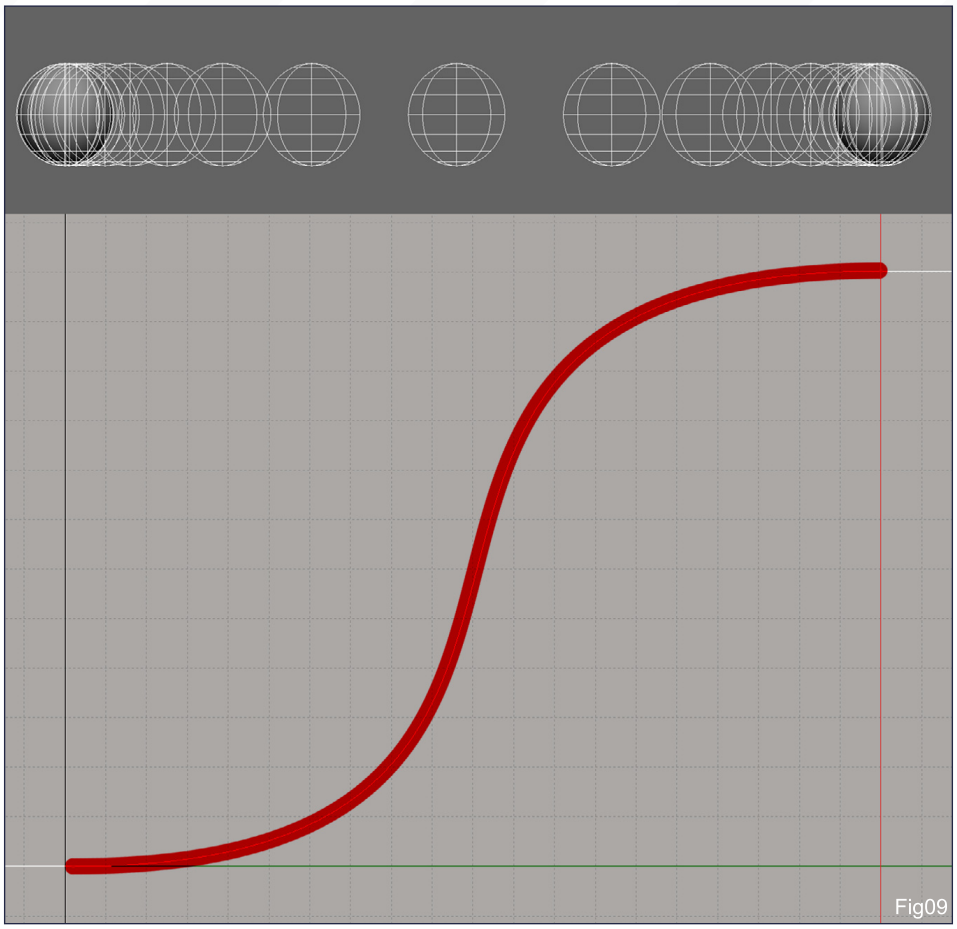
The spline curve with “slow-in and slow out” on **Fig08** creates a much more interesting and smoother motion.

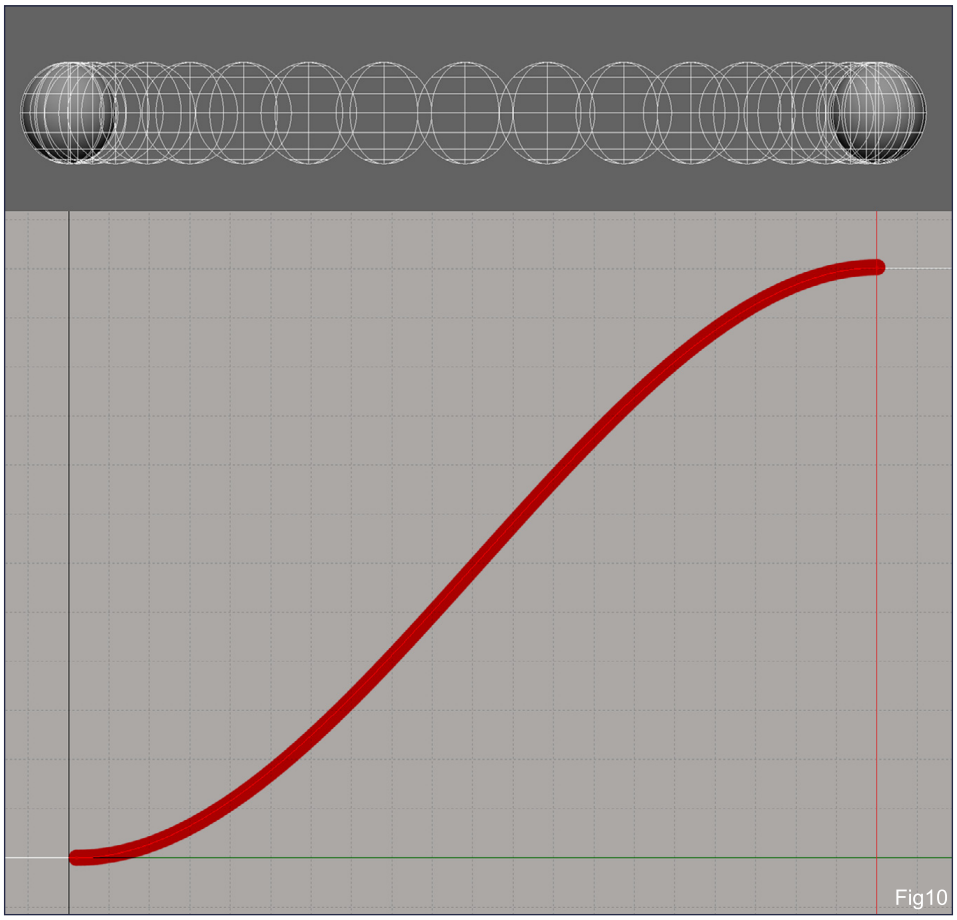
As you can see from **Fig09** and **Fig10**, when you adjust the handles to change the amount of the “slow-in and slow-out” phase, always think about the gravity and the weight of the object you are animating. For instance, it would take more energy to move a heavy object, then once it starts moving and picks up momentum it would be just as difficult to stop it! For a lighter object however, since it’s so light, it would have less trouble moving itself. A shorter “slow-in” phase would therefore be needed, and a shorter “slow-out” would be needed to stop.

The curve in **Fig11** is useful in situations such as when a car hits a strong brick wall. Imagine a car accelerating, then at its fastest point it stops without any deceleration. The same characteristics apply to heavy falling objects. Things like large rocks don’t bounce off the ground. Once they hit the ground they just stop. Now try to think of an action where you would see this type of motion.

Fig12 is the opposite of **Fig11**. Think of a ball being hit by a hammer. When an object is hit by a strong force, like a hammer, it doesn’t have the smooth “slow-in” phase. Instead, it gets straight up to maximum speed and from there it slows down.

It is important for you to play with the curve for long enough so that you can naturally employ any of these things in your own animation work.


Fig09


Fig10

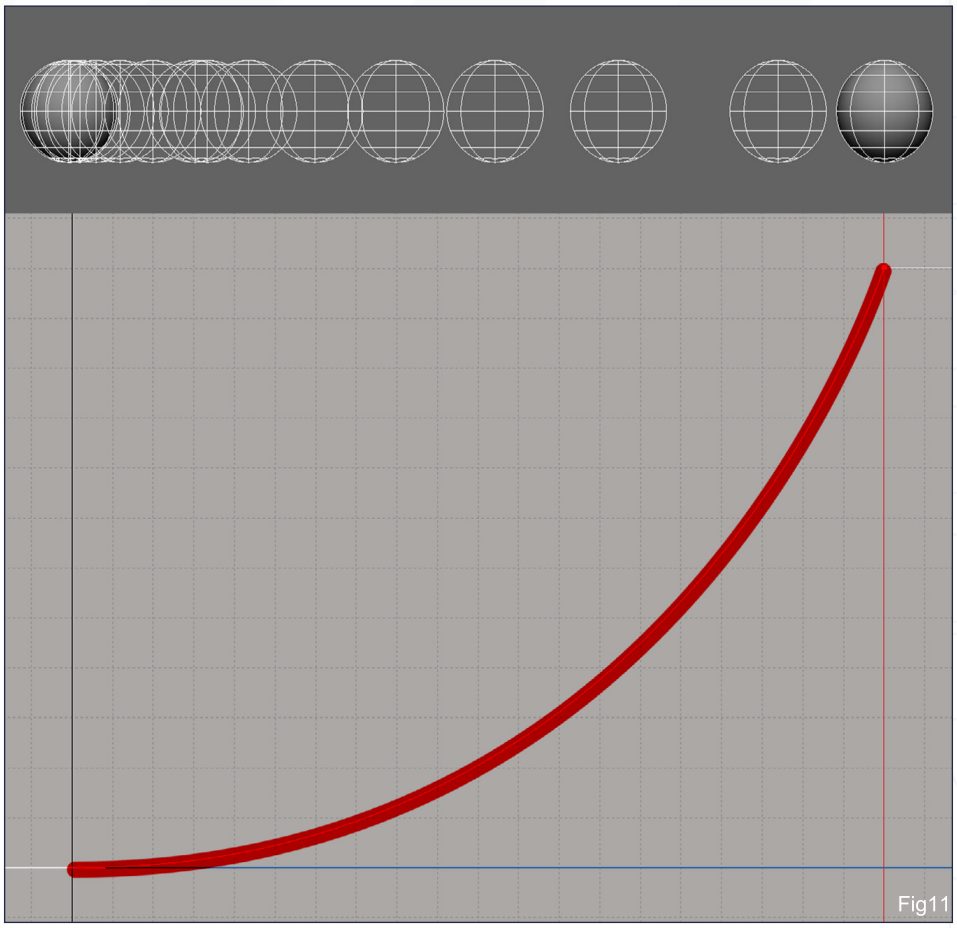
Exercise 3: Contrasting Objects

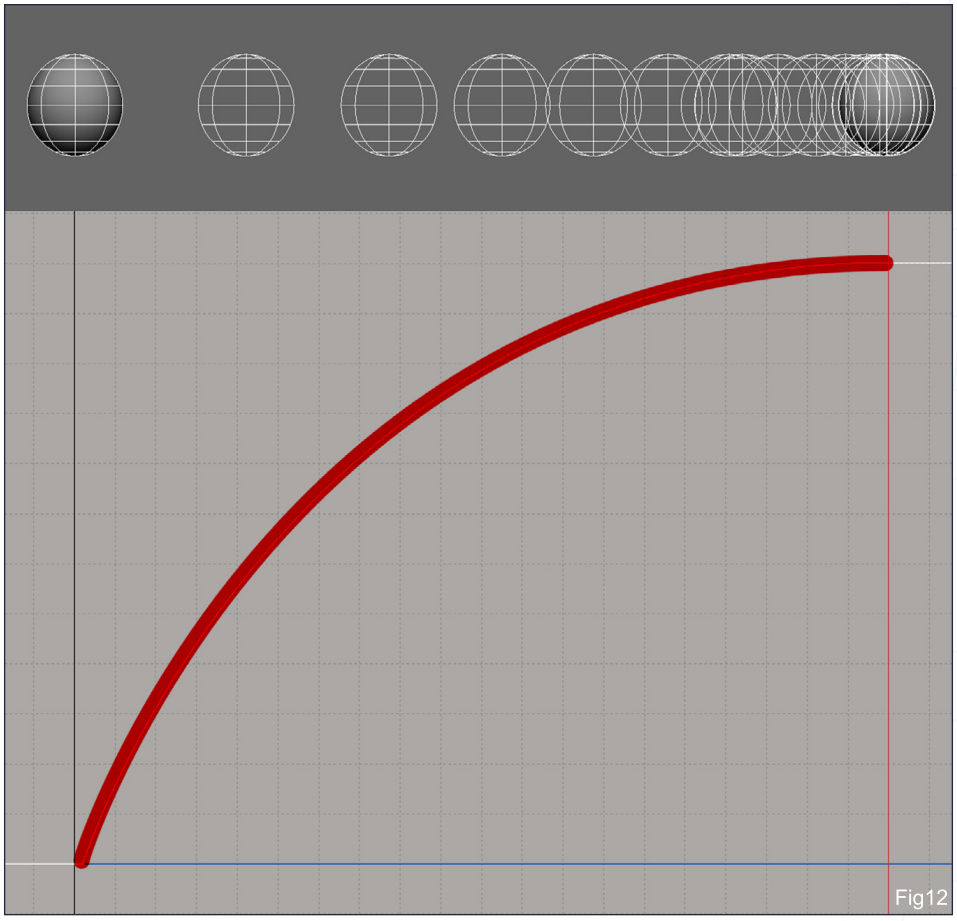
When you have done the previous exercises and you feel comfortable with them, we'll move on. So, when you're ready, let's create two similar-looking objects in a scene. We need to make one object much heavier than the other one. This weight difference will be conveyed through their motion alone, therefore the key thing we need to be constantly thinking about here is their weight and gravity.

Since we'll have two similar-looking objects with two very different characteristics, their differences will nicely compliment each other. What I mean by this is that the lighter one will make the heavier look heavier, and the motion of the heavy object will make the light one even lighter. This is just one example though, so from now on always think about how you can create this contrast.

This simple exercise using two spheres can turn into your very first short film. Just give it a silly little story and then animate it! When we have an achievable goal like this, the learning experience is so much more fun. So let's have fun with this!

OK, so we have three exercises to get on with now, so I hope they'll keep you busy and will be fun. I am sure next time we meet, you will feel much more comfortable with these principals and will be able to jump into some more technically-challenging animations!


Fig11


Fig12

Jae Ham

For more from this artist visit:

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"ZBrush's brush set is arguably one of its most powerful features, along with its ability to handle truly staggering polygon counts"

For all of you out there who have heard of, but are unfamiliar with, ZBrush then this new 7 part tutorial series by Wayne Robon is for you. The Total Beginners Guide to ZBrush is an excellent starting point to get you into the world of ZBrushing



BEGINNERS GUIDE

TO ZBRUSH PART 1 BY WAYNE ROBSON

BEGINNER GUIDE TO ZBRUSH PART 1

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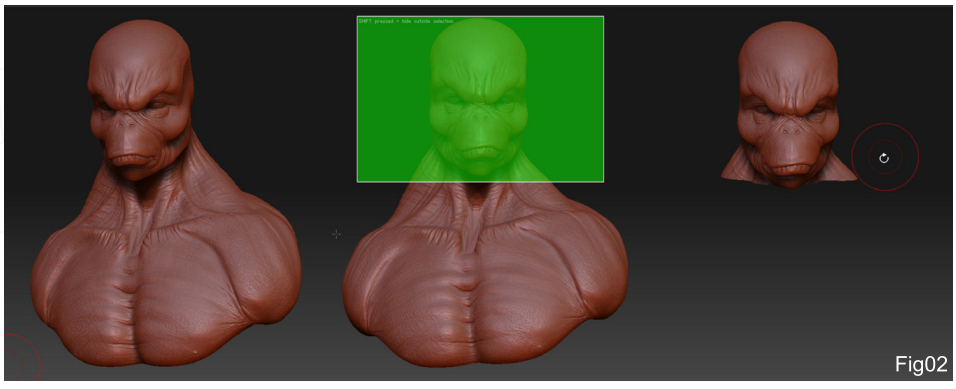
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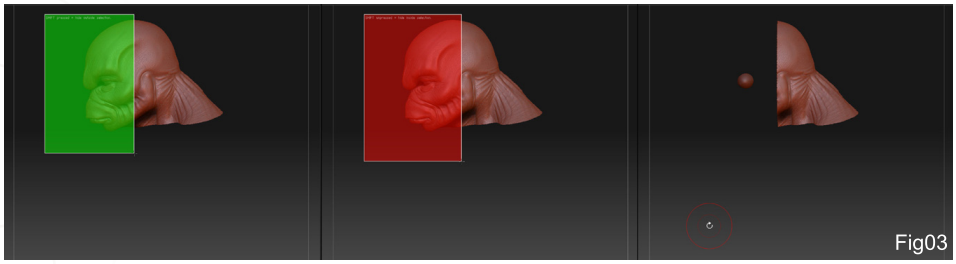
Section Title

In this series of 7 articles, I was asked to produce a beginner's guide to Zbrush which assumed that the user does not know a whole lot about the program or how to use it. These articles aren't meant to take the place of either the help files, or proper training, but should give you an excellent starting point to get you into the world of ZBrushing.

In this series we will be working our way through the basic process of creating a creature bust, taking it to completion by the last article (**Fig01**). We will be starting with a basic Zsphere base mesh that we will create ourselves and we'll use this as our starting point for sculpturing and finally adding texture to. The reason I'm splitting the full project into 7 parts is that we can take it at a beginner's pace and cover as much ground as possible for people totally new to Zbrush. (Plus you'll end up with a finished digital sculpt that will give you the confidence to approach you own projects in a similar manner.)


Fig01


Fig02


Fig03

I will be assuming that, at the very least, you have read the basics of navigating in ZBrush from the Zbrush help files. This will help us cut down the length of the series a little and will also make sure that as a new user you get the most out of these lessons. I would like you to practice what you learn in each lesson, either on the model we are doing, or on one of your own. It is important that you do this because the more that you use Zbrush, the more confident and at home with it you will become. Assuming you know how to navigate, we'll start by covering the



Fig04

basic concepts of some of the brushes etc that we will be using, before creating our Zsphere base mesh. In the next article we will start the sculpting 'proper'.

Basic Techniques

Showing and hiding polygons

There are many reasons why you might want to hide part of your geometry while working on it. These range from simply wanting to concentrate on a particular area you are working on, to wanting to improve the performance of your image at high polygon counts. To hide some polygons, first take one of the default models provided with Zbrush (a selection of them are available on the splash screen) to test with. Hold down Shift + Ctrl and drag over the area you wish to keep. This will then hide everything else on this tool. To remove more polygons from this area simply do the same as before, but before releasing your left mouse stop pressing the control key. The previously green selection box will now turn red to let you know that this area will be hidden.

You can also have your selection changed from the default box dragging type to a lasso type. You can find this in some of the interface layouts and also in the Transform Palette. This then lets you select much more complex shapes than are available with the default box drag type (**Fig02** and **Fig03**).

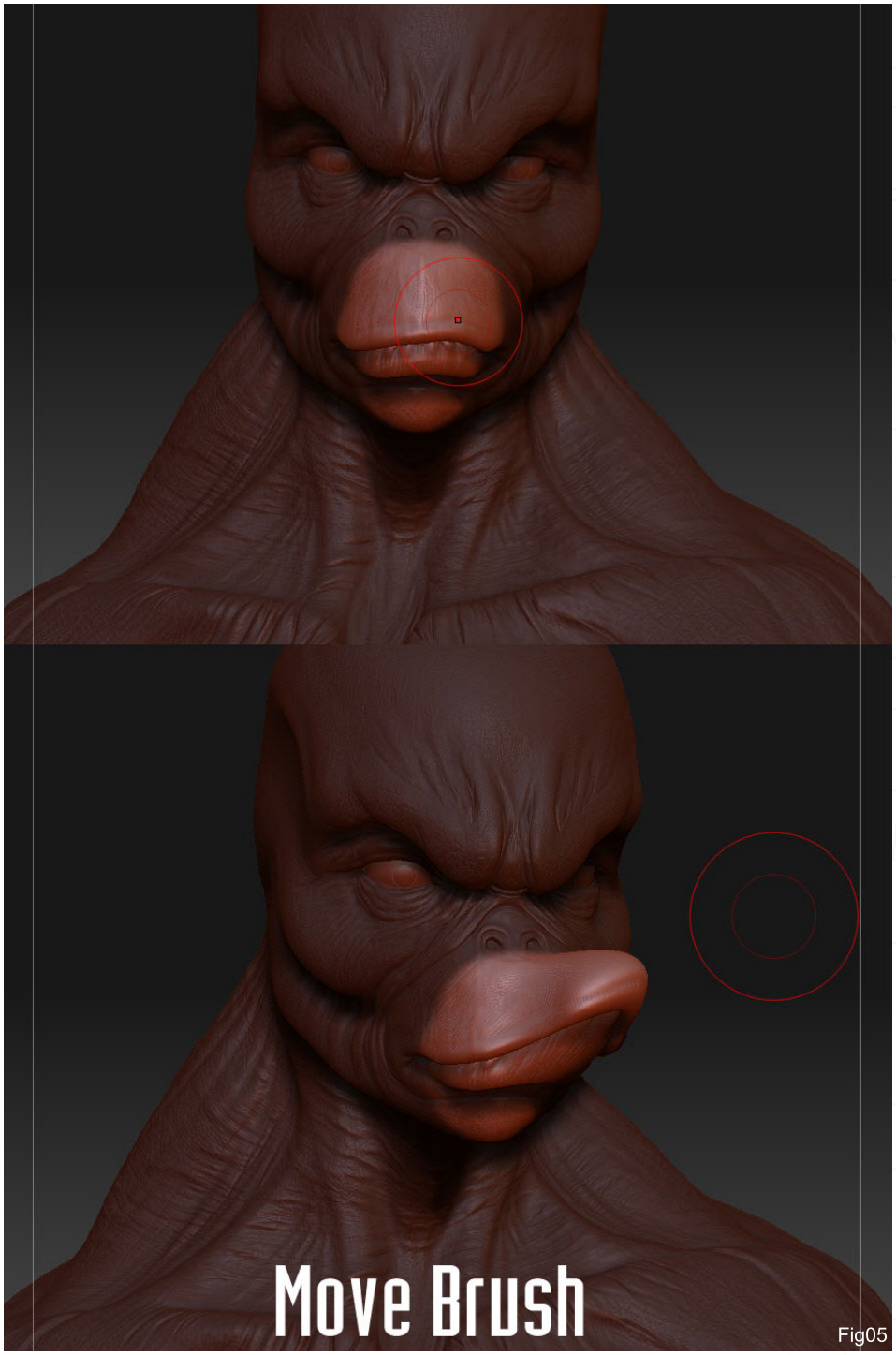


Fig05

Masking off areas

A mask can be described using a favourite analogy of mine: just think of them like the force fields on the star ship enterprise. When



Fig06

you have an area masked off (or to continue the analogy, 'shields up'), that area will remain unaffected by anything you do to the unmasked area. There are literally tons of ways to make masks in Zbrush, but the easiest is to simply hold down you control key and use your brush to draw the area you wish to be masked off. Masks are an essential modelling tool, as it can often be much easier to sculpt an area if other areas you do not want to be affected are masked off. For example, if you wished to close the top eyelids on a head model, you would simply draw a mask over the bottom eyelid so that when you used the move brush, the bottom lid would remain unaffected (**Fig04**).

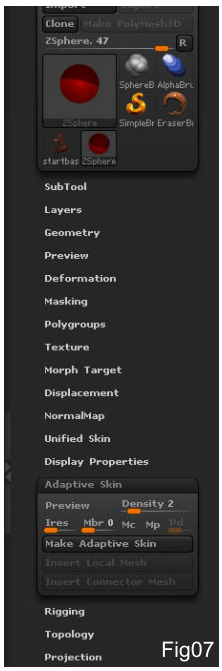
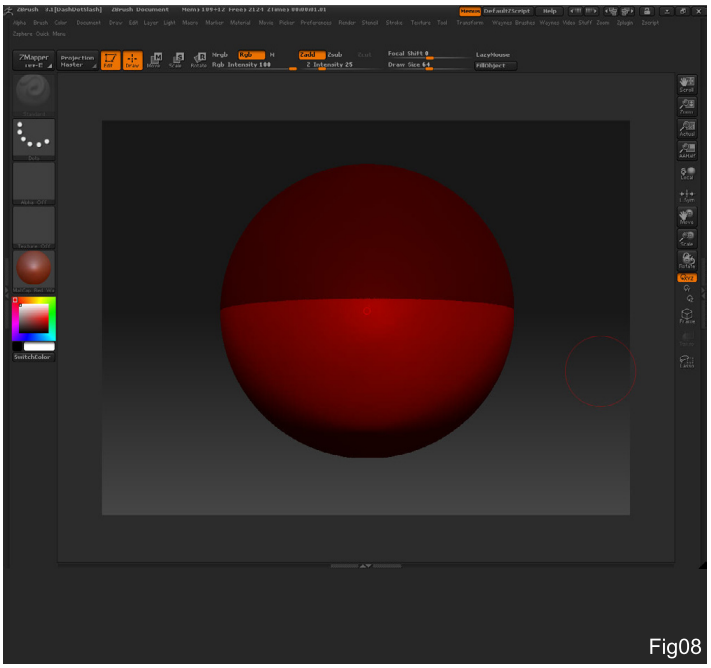
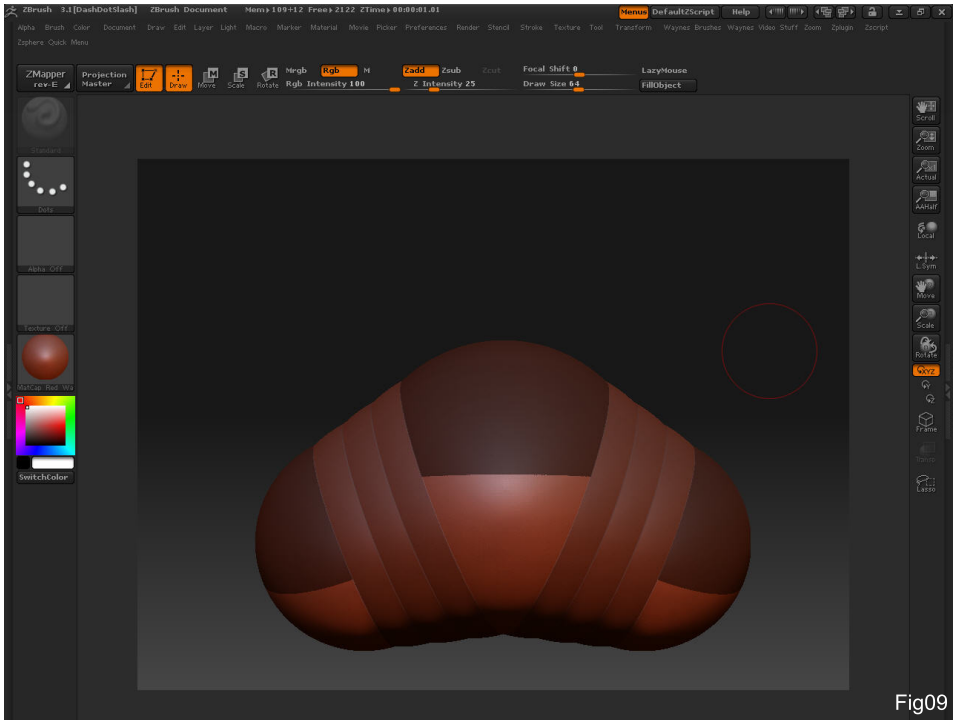


Fig07


Fig08

Brushes

ZBrush's brush set is arguably one of its most powerful features, along with its ability to handle truly staggering polygon counts. There is a different brush for literally any job you might think of and many of them have more uses than they first seem to. Brushes are controlled by the ZIntensity slider - with 0 being no effect on the model and 100 being a massive effect on the model - and are used along with Zadd (this makes the geometry be pulled outwards) and Zsub (which pushes the geometry into the model). You can also change the way a brush reacts with your fall off, which is controlled by your focal shift.


Fig09

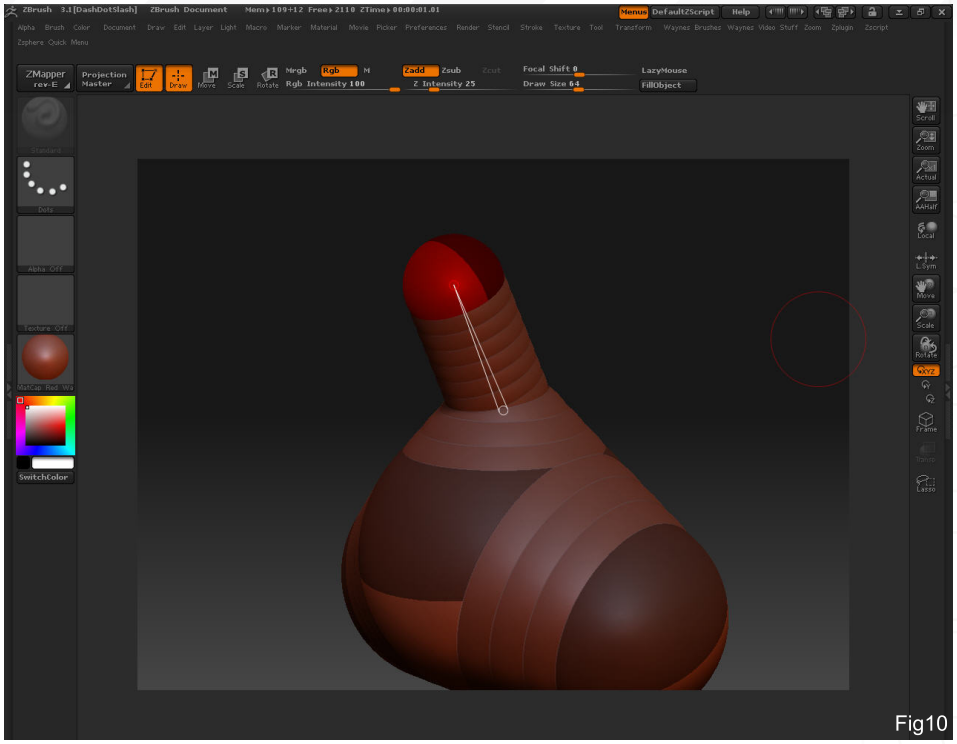
Which stroke you chose from the Stroke menu can vastly change what a brush will do when you use it; as well as more standard stokes,

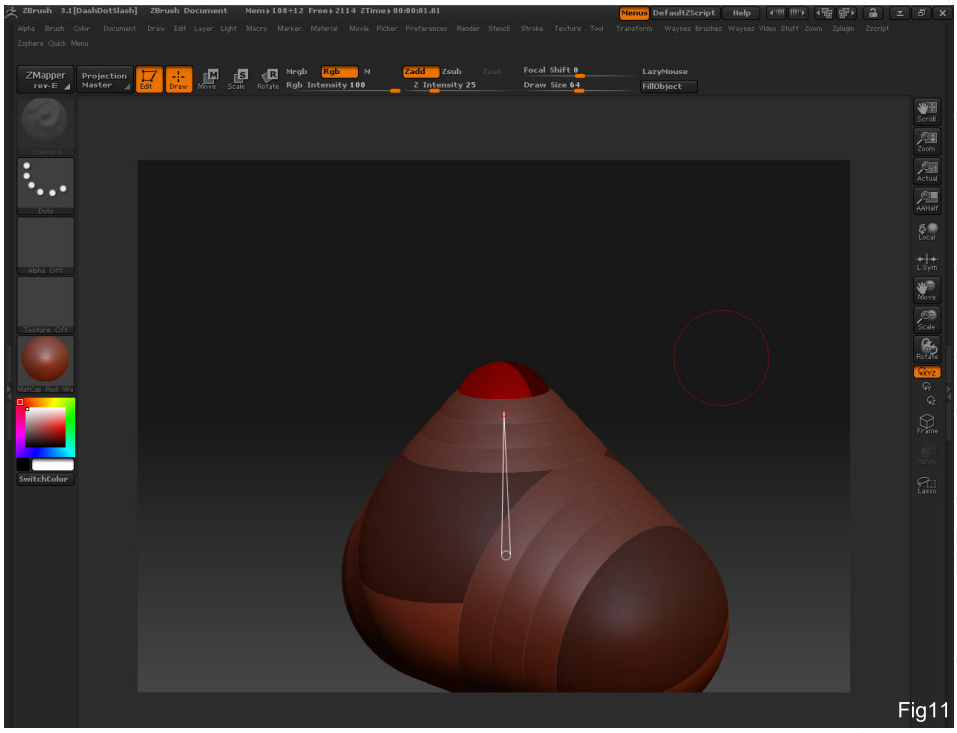
there are also a selection of scatter strokes and a drag rectangle one. When used in conjunction with ZBrush's different alphas, you can do just about anything. You can make and import your own brushes if you want to, but to be honest the ones that come with Zbrush are pretty damn good for 95% of the sculpting jobs you will do, if used correctly. I would recommend simply messing round with the brushes on a subdivided Polysphere for a while to get used to the feel. There are so many options that it is impossible to cover them all here, but as with everything in Zbrush, if you are not sure what something does just hover over it, press the Control key and a nice box will come up outlining what it is and what it does.

There are some brushes that it is really important to know about from the get go. The smooth brush is one you will use a lot; it smoothes out areas you are working on to help you get the surface to your digital sculpture that you want without any nasty bobbling on it. It smoothes the transition between adjacent polygons, but really that's just a complex way of saying 'it does what the name implies'. We will be covering the difference between some of the brushes as we progress through this series.

Move Brush Vs Move tool

This confuses new users quite a lot, so I thought it best to cover it in this article. There are two sorts of 'move' in Zbrush: a move brush, which when selected will move areas of your model according to what stroke type, alpha ad falloff you have and a transform move, which uses action lines. There are also scale and rotate transforms as well, but we will go into those later in the series. For most sculpting jobs you will probably use the move brush found in the brush menu, so experiment with it (like the other brushes) for next time and we'll take things further (**Fig05** and **Fig06**).


Fig10

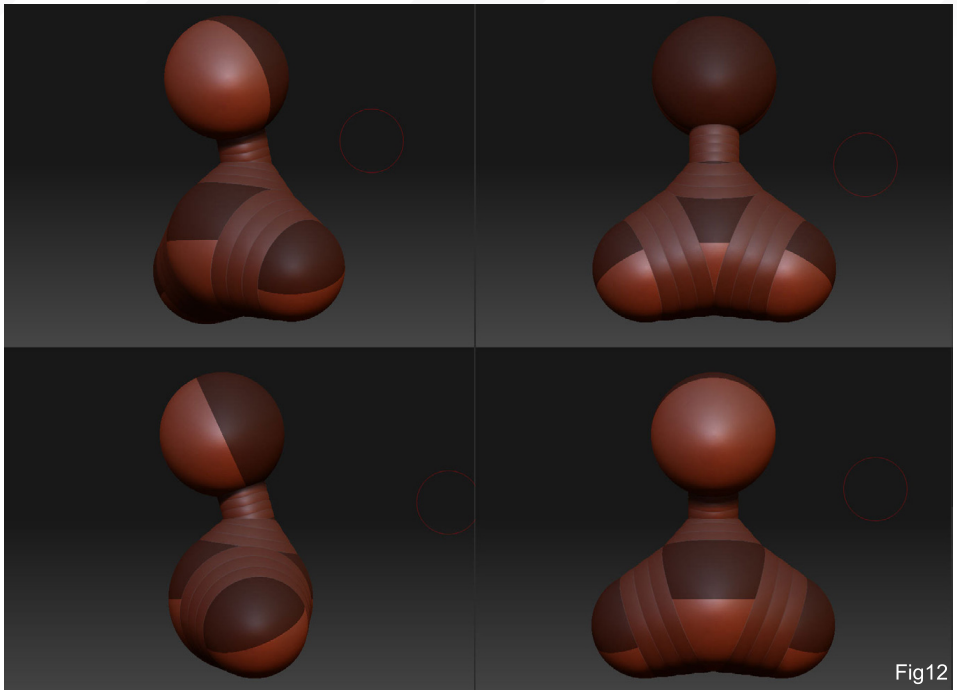

Fig11

The Birdman Project

Part 1 the sphere base mesh

First we're going to create a base mesh in Zbrush, using Zspheres to quickly rough out a basic base mesh that will give us somewhere to start. Although you could obviously import a base mesh polygon modelled in a separate package, it is important to get to grips with the very basics of Zspheres early on if you are to gain total confidence in using Zbrush in the long term. Zspheres are a special type of tool in Zbrush that enable you to quickly and effectively block out your base mesh. They are also used for Zsphere rigs and are part of the core concepts of Zbrush. A Zsphere is a two-tone sphere that is used in a few different workflows in Zbrush such as retopology and Zsphere rig posing. Making a base mesh will save a lot of time (as well as space in this series), so as such we'll be using them (**Fig07**).

To create our base mesh, pick the two-tone sphere from your tool menu and press 'X' to activate X symmetry (Y & Z can also be used to switch those types of symmetry on and off as well). Symmetry means that everything we do on one side of the model automatically happens on the other side as well, saving us time. As a symmetrical sculpture can often look characterless, we will be adding some asymmetrical detailing later to help to give the digital sculpture a sense of 'life' and 'being'. However, at the early stages of this article we will be keeping it symmetrical to make our job of sculpting it a bit easier (**Fig08**).


Fig12

Draw a Zsphere onto the canvas as shown. Then, by lining up the two brush icons at the top of it, draw another. You will notice that when they are totally aligned they turn green (you can also use the move tool at this point to move things into position so it matches what you see in the image). Set your draw size very low when dealing with Zspheres as this makes things a whole lot easier. A larger size brush will mean when you move a Zsphere you will be affecting more than the one you may want to, so it makes things less confusing to have a very small brush size (**Fig09**).


Fig13

Now we want to draw another Zsphere on each side, but we only need to draw one because the X symmetry will mirror our actions on the other side. Next, draw in your neck sphere and use your move brush to pull it up a bit. By holding down the Shift key you will now be able to click on this neck sphere and add another that is the same size. After doing this, pull it up a little as shown before finally drawing one for the head (**Fig10** and **Fig11**).

Save this, as later in the series we will need this rig to demonstrate one of the ways of posing our models using Zspheres (**Fig12**). If you now scroll down you tool palette, you can go down to the adaptive skin and you can preview the base mesh by pressing either 'A' or the 'preview' button. We can change the way that ZBrush generates mesh by using the settings below. (Be sure to experiment with this yourself to get comfortable with how they work). This will create an Adaptive skin base mesh that is no longer linked to our initial Zsphere rig. It is now a set of polygons and each set of Zspheres has been

give its own polygroup that you can see using the ‘frame’ button (Shift + F also turns this on and off by the way) (**Fig13**).

In the next article we will start to sculpt on our base mesh and begin the process of making it look more like a digital sculpt and less like a group of polygons. Your ‘homework’ before the next article is to mess around with your new base mesh and subdivide it a few times (found in the geometry part of the tools panel). Try out some of the brushes and hopefully you will start to feel a bit more at home in preparation for next time. But make sure that you keep your adaptive skin tool (by saving in the Tool palette) and also your Zsphere rig for later use later in the series.

See you all in Part 2!

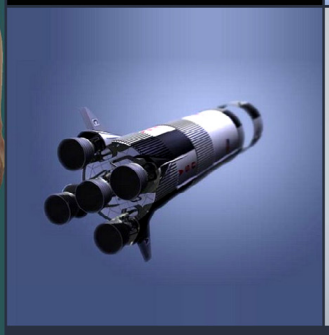
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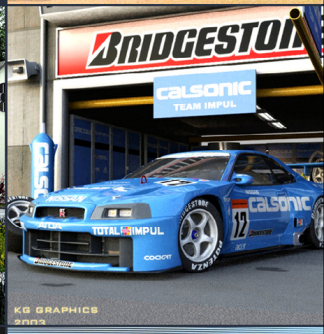



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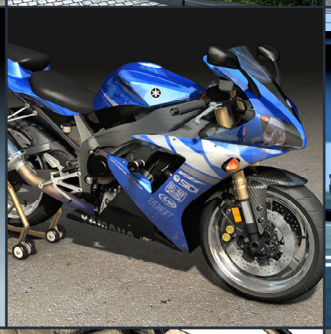
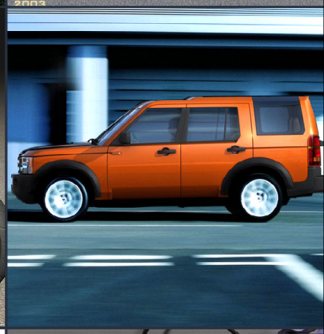
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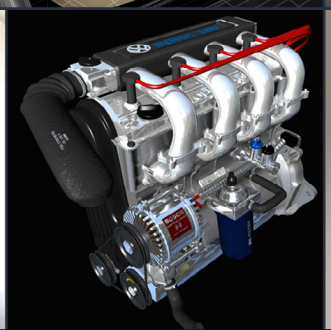










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"When it comes to cars I like to start on the hood area, find and model a definitive line that runs from the windscreen to the front grill"

Vantage Dusk

making of

Ian Brink takes us through the creation of his image 'Vantage at Dusk'.

Vantage Dusk

Created In:

3DS Max

Research

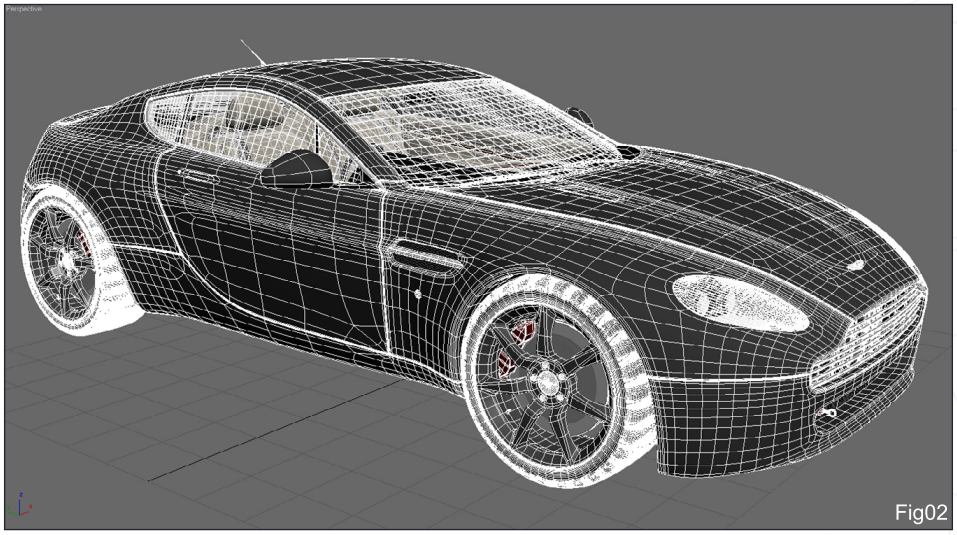
As with any project of this nature, the key to a realistic model is proper research and a decent set of blueprints. Having sourced the blueprints, I soon discovered that (as usual) there were certain discrepancies between the different angles represented on the blueprints. However, this was unavoidable as the angles were sourced from different locations and traced from different perspectives and photos.

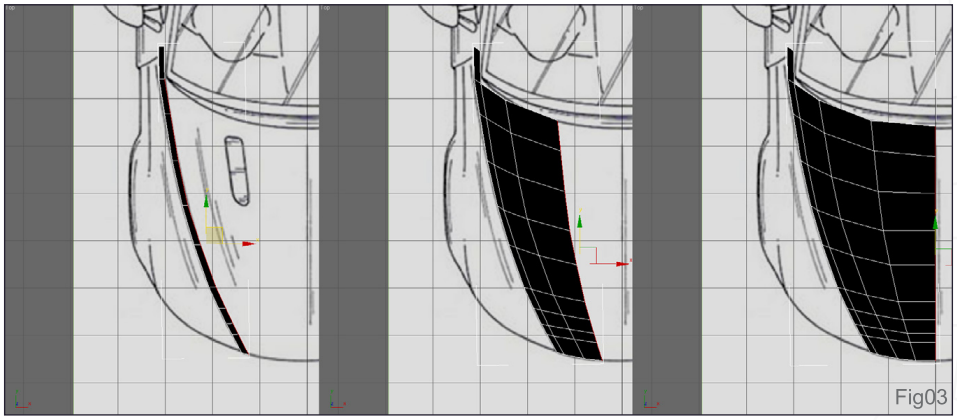
Seeing as the side elevation had the most detail and was of a decent size, I decided to use this view as gospel and tweak the remaining ones accordingly. In doing so I ended up with a set of blueprints that lined up in all the important places and that I hoped would produce a final model with the correct amount of headlights and so fourth.

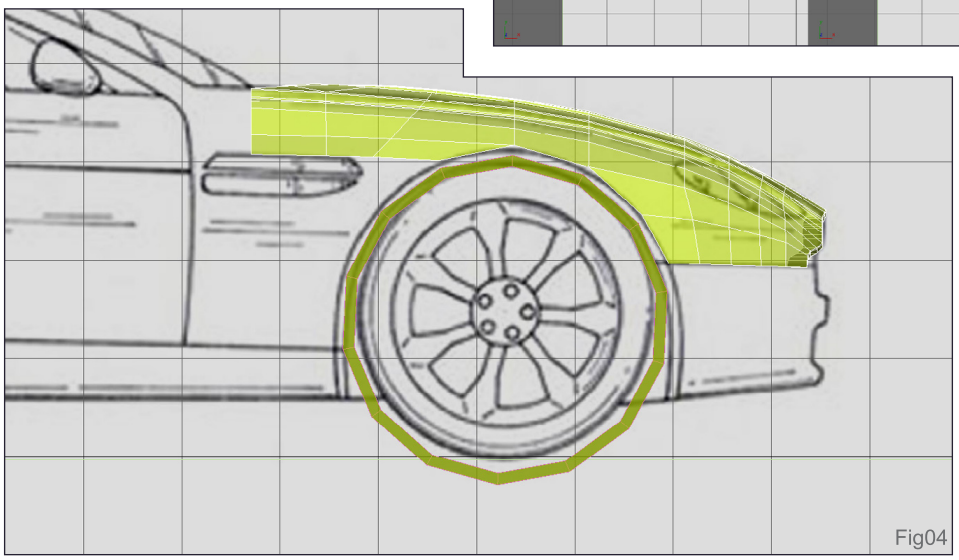
Concept

This specific concept initially started out as a studio render of a V8 Vantage Rally edition. I found a nice set of photos depicting this car in green livery with some orange pin striping


Fig01

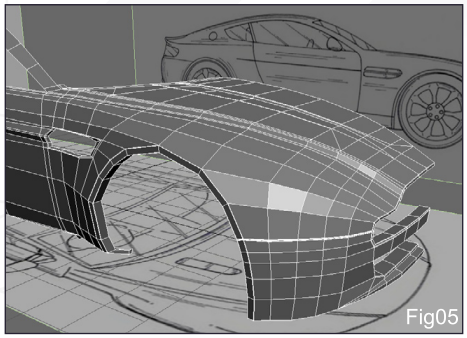

Fig02


Fig03


Fig04

around the nose area and over the tops of the door sills. At the time I was convinced that this was the nicest thing I've ever seen and I started on the project that same day (**Fig01**).

A few months after the Rally renders were done and my brain had sufficiently cooled down, I was walking along the local waterfront area in Cape Town and I discovered that they had opened a new Aston Martin Dealership. As I strolled passed the showroom floor and into the setting sun, a line of pitch black V8 Vantages with beige


Fig05

leather and walnut interiors peered at me from behind the glass.

That was more than enough to sell me on the concept and I decided that there could be nothing more captivating than a mood shot render of a black V8 Vantage under the setting sun. Seeing as the previous renders had a studio setup and a very clinical feel, the exterior setting for this render would be a welcome change.

Modelling

First I set up the blueprints on their respective plains, lined them up and set up a slightly see-through material for my main poly modelling purposes. When it comes to cars, I like to start on the hood area, find and model a definitive line that runs from the windscreen to the front grill, and then clone that edge sideways to extend the mesh from left to right, or vice versa. If that first line is set up correctly to the blueprints, the whole bonnet of the car will be smooth and hopefully dent free (**Fig02** and **Fig 03**).

With this same principal in mind, I moved over the sides of the vehicle where I matched up the nose segments with the wheel wells. The wells are usually set up as a separate tube's whose uppermost polys (seen in the side elevation) are attached and welded onto the nose piece mesh (**Fig04**).

After integrating the wheel well, I moved over the rest of the vehicle from front to back putting polygons in strategic places to assure they lined up with the doors, windows, air vents and other


Fig06


Fig07

details on the car's body. This was by far the most time consuming part of the project; you need a certain amount of patience to ensure all the vertices line up with one another and with the blue prints in order to avoid any dents or irregularities. After the basic shape was modelled out, I extruded and chamfered the detailed edges of the doors, body panels and other areas where sharp corners and folds were needed (**Fig05**).

For the headlights, I simply selected the polys where the lenses would go and detached them from the main mesh. These edges were then cloned inwards to make the beginnings of the

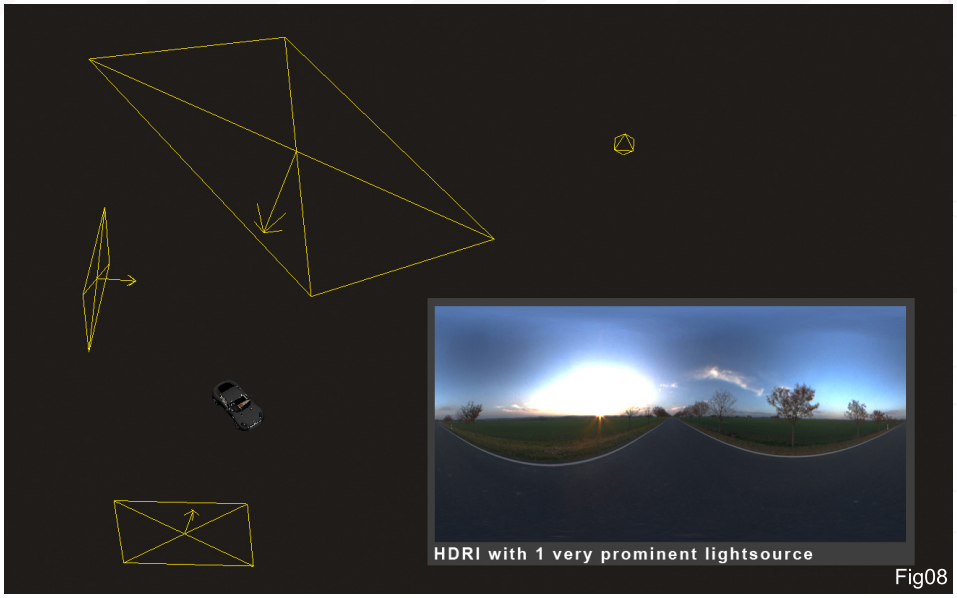


Fig08



Fig09


Fig10

light's casings. With objects like lights I follow one basic rule: to try and get it as close to the real thing as possible. Unfortunately I didn't have the luxury of hacking an actual Aston Martin headlight in half to see exactly what it looks like inside, but I did spend many a happy hour peering into the head and taillights of cars - to the concern of some of their owners.

Next on my list were the interior, mirrors, other trimmings and lastly the wheels. This is a part of the modelling process that I enjoy greatly and there are a couple of ways to approach these parts of the mesh. For the rims and tread pattern in particular I used a common segmented approach. I modelled only one slice or spoke of the rim, and then used the 'array' command to clone these elements around a central axis to produce the full circle. The rubber was made using a simple lathe, and then the extra details like the valve, nuts and stubble were added last (**Fig06**).

Texturing

After finishing the modelling, I did an extensive

material setup. The main challenge was the car shader, especially as black is, in my opinion, one of the harder colours to get just right. For this project I used a Vray Blend Material consisting of a highly reflective layer or clear coat on top, a grainy middle layer and a bottom layer with a lot of falloff and all combined as a non additive shellac (**Fig07**).

As I was expecting, the material of the taillighta also presented a unique challenge. I had to make use of double sided materials consisting of coloured fog and various bump maps for the red and orange outer lenses. Slightly less reflective chrome was used for the plastic headlight rims and other trimmings. For the rest of the materials I used pretty standard stuff; a nice bump map for the tyre rubber's writing, proper leather and other more tactile plastic materials for the interior and dashboard. The windows were also unwrapped and given refraction maps to allocate where elements like the tints and rear window defrosters were going to be.

Lighting

The next step was a proper lighting setup for the model. Seeing as I had chosen an exterior scene and the vehicle would get some direct sunlight, albeit subdued, I had to make use of a single Omni light with low settings. To light the rest of the model I added two Vray Plane lights (no specular) towards the front and the rear of the car, one larger Vray Plane (also no specular) above the vehicle and finally an ambient HDRI setup (**Fig08**).


Fig11

I set up the HDRI using a series of fast light cache renders of about 30 seconds each. These were rendered at intervals around the car so I could compare the use of light and shadow to get an optimal result. The Omni light was then moved to match the position of the sunset on the HDRI to make sure the shadows would be cast correctly (**Fig09**).

Rendering Stages

Finally the project was lit and ready for the rendering stages. These included a series of small test renders with very low GI settings, followed by the final render passes of 4000 x 3000 pixels and the subsequent post production in Photoshop.

Because of the reflective nature of the black car paint shader, it tended to pick up every little element in the scene, especially above eye level. Therefore I had to render the rims in a separate pass where I could add some extra lighting helpers (planes with Gradient Vray Light Material applied) to add some extra specular effects and push the metallic rim shaders to a more appealing level (**Fig10**).

In post production I added the rim render to the main scene, adjusted the levels and added some extra detail to the tarmac material to make for a crisp end result. I also added some highlights to the headlight areas to


Fig12


2008



make the scene more dramatic and tweaked the background to give the mood shot render a more stylised feel and ensure the focus remained firmly on the V8 Vantage in the foreground (Fig11 and Fig12).

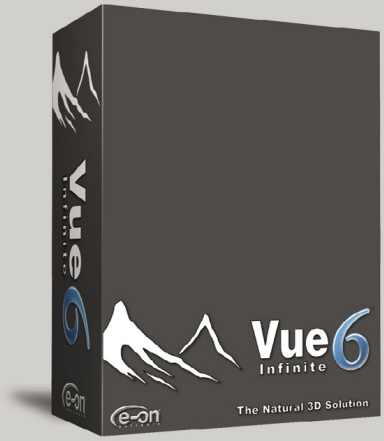
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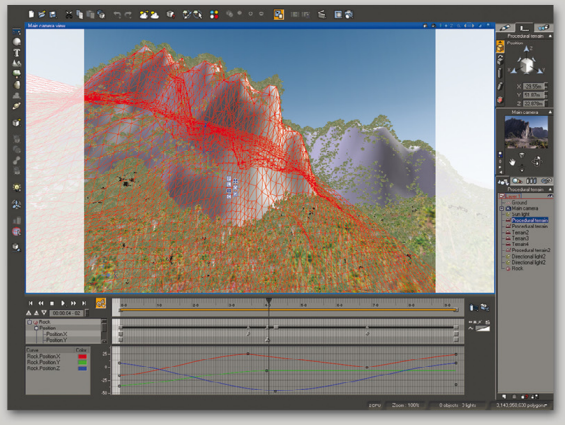
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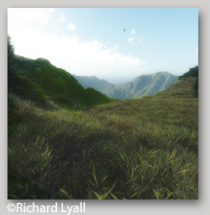


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I am Sam

making of by SweetKim Lai



SweetKim Lai shows us how he created his image "I am Sam"

"Basically the work flow is very similar to photoshop, but you need a bit more time to get used to the interface"

i am sam

Created In:

Maya and **ZBrush**

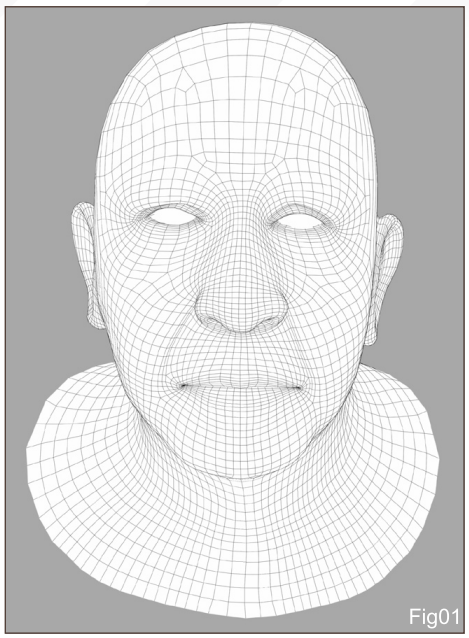
Introduction

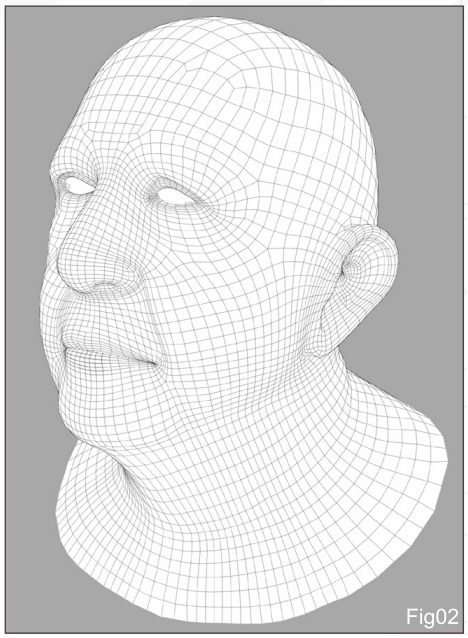
Sam is my second attempt at creating a realistic CG human head. My main reason for choosing to create an old man is that there are many more skin details on an older face than there are on a younger person. To me, that would mean “more for less” - by which I mean that because there are more details, it’s less of an effort to achieve realism. Younger and smoother skin is a lot harder to create as the line between real and plastic is extremely fine. I think it’s something I’d like to try in the future though, just to challenge myself, so hopefully I will be able to show my work to you again at some point.

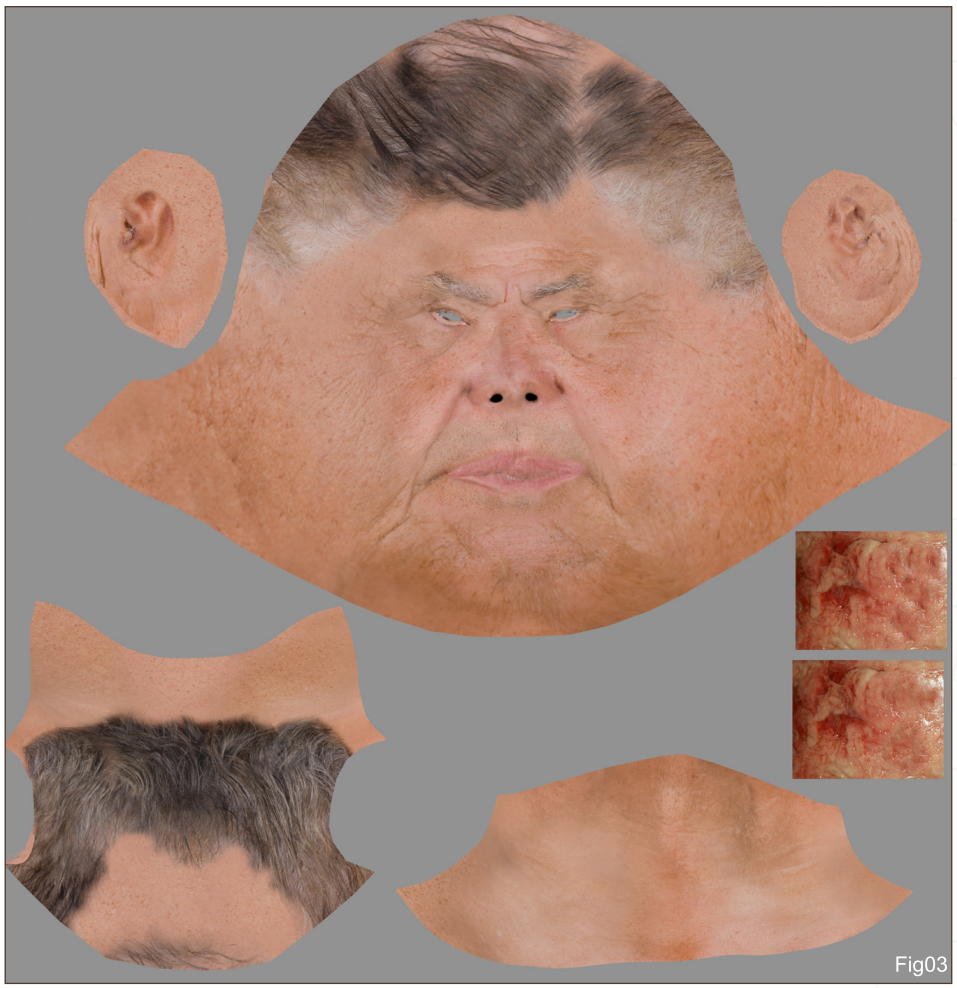
The software that I used for creating Sam included Maya 7.0, which was the main software used for modelling, laying out UV and hair planting; Mental Ray for rendering; Bodypaint 3D for texturing and ZBrush for creating a displacement map.

Modelling Sam

I was fortunate to have hi-res photos that I could use as a reference point for this project. After importing the usual left and front reference photos into Maya, I began by modelling just half of the face with as little poly as possible, slowly adding more details along the way. I then mirrored the completed face model and spent some time refining the face to break up the symmetrical look. At this point I imported the quarter view photo into Maya and adjusted the face model to match the photo. It is important to match the model not only to the left and front views, but also to the quarter view because this view can sometimes provide the vital finishing touches to your model. To make the matching


Fig01


Fig02


Fig03

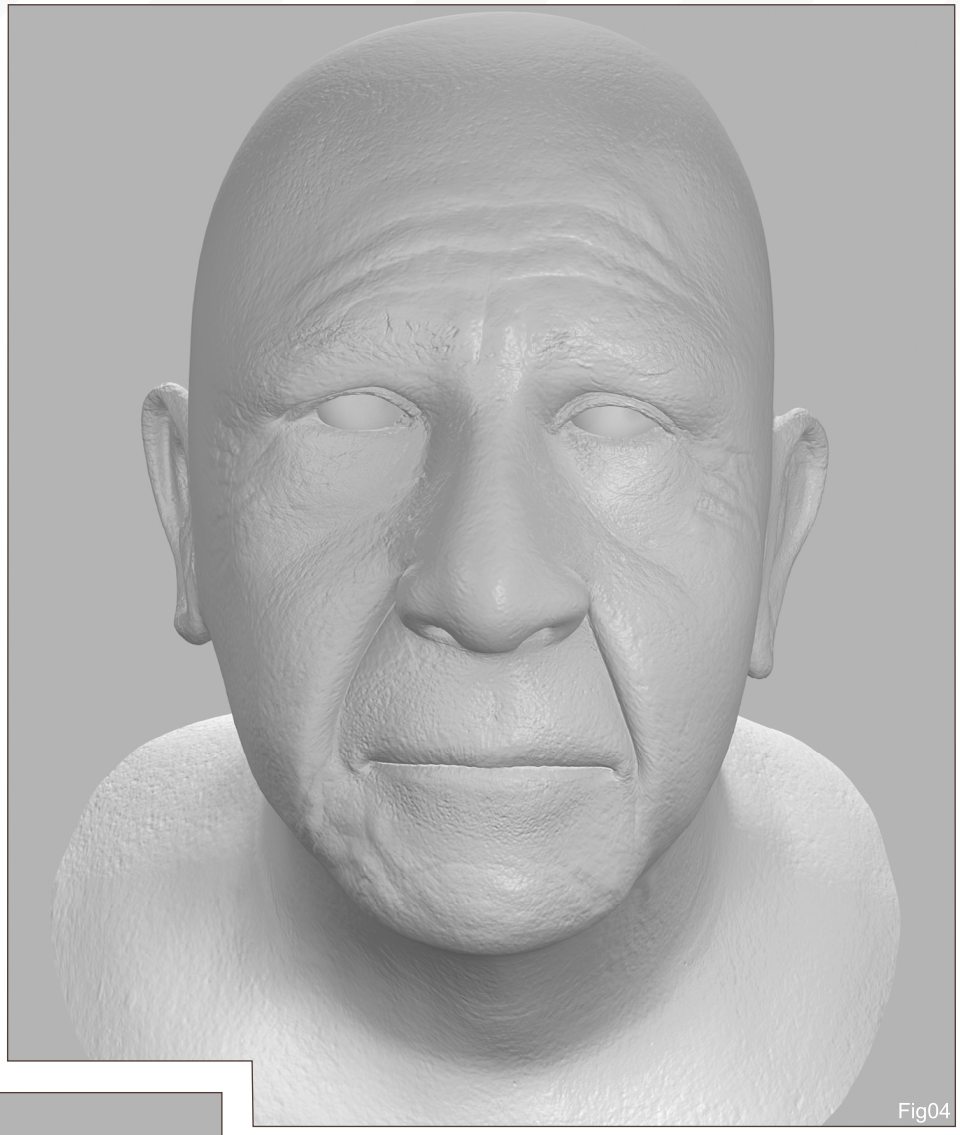
up process a little easier, try to remember to find out the focal length of the photo. Each eye ball has two layers: cornea for catching all highlights and actual eye model for shading. Poly cones were used for eye lashes (**Fig01** and **Fig02**).

Texturing and Shading

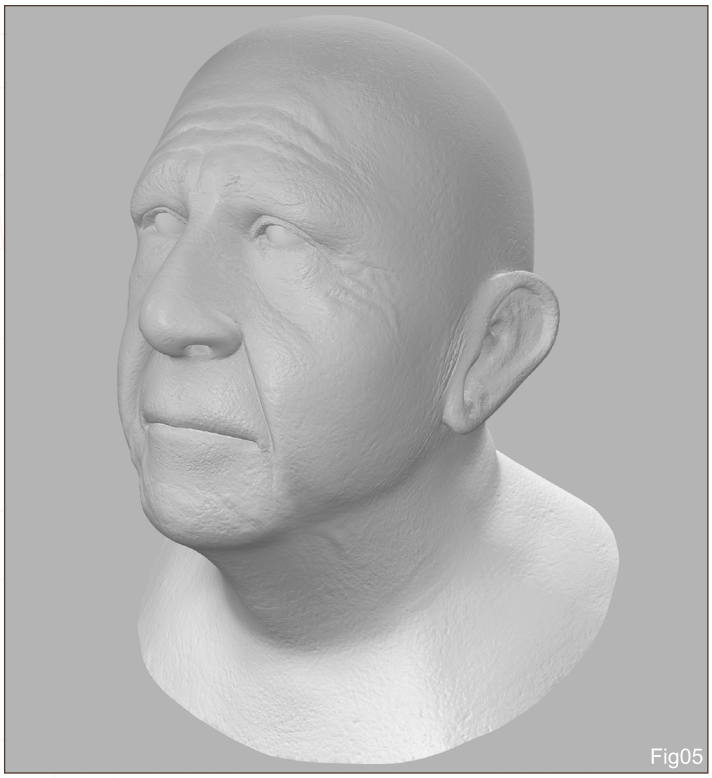
A good UV (a non stretchy and overlapping UV) is usually the most important aspect when your trying to create a realistic texture. In the good old days, a realistic UV meant long hours

of moving, cutting and sewing UV points. Nowadays, there is a UV layout tool called 'RoadKill', which allows you to get excellent results in seconds. It can be downloaded for free at **http://www.pullin-shapes.co.uk/page8.htm.**

Once you've got a good UV, export the model in OBJ format to Bodypaint 3D for texturing. You can then project those hi-res reference photos onto the model; you can erase, clone, paint, mask and create more layers as and when necessary. Basically the work flow is very similar to Photoshop, but you need a bit more time to get used to the interface. Again, having those hi-res photos makes it a little easier to produce quality textures, although it's important to remove highlights on the photos before using them. You don't really want to include highlights within the textures; the highlights will be taken care of when assigning materials. Also, try making the texture as large as possible. It will certainly make a difference to the final result. I had my textures at 4096 x 4096 resolution (**Fig03**).


Fig04

The face texture can now be used to create a displacement map within ZBrush. Convert the face texture into 16 bit greyscale (non RGB) within Photoshop and export it as PSD format into ZBrush to use it as a mask. Load the mask onto the face model within ZBrush and apply "Inflate Deformation" to the face model. Try inflating a few times with low values instead of trying to achieve the result with one go. When you are happy with the result, export the displacement map back into Maya.


Fig05

I used the misss_fast_skin Mental Ray node to achieve a Subsurface skin effect. I generated two other versions of the face texture for Epidermal Scatter Colour (a pale version for outer skin) and Subdermal Scatter Colour (a much saturated for the second inner layer). As for the Back Scatter Colour, I simply assigned a darker red colour to simulate the deepest skin layer. I also applied a mask to isolate the Back Scatter Colour to the ear and neck areas, which shows up nicely when you add a strong back light to the model.

Apply the displacement map to the model. Remember that ZBrush treats 0.5 black as a non displacement value and therefore you need to offset

the value by applying an expression (file.alphaOffset = file.alphaGain/2) to the file node (**Fig04** and **Fig05**).

Hair planting

Making hair used to be a difficult thing to do in CG. It isn't a lot easier with my methods, but it is certainly possible to achieve the look that you want and to render it within a reasonable time frame. Apply "Maya Hair" with the output of "Paint Effects" to the model. Select the hair, and display, and you will see the underlying curves that control the look of the hair. The trick here is to bend the curves in whatever way you want - it's very much like combing your hair. I have modified a script from the "Maya Bonus" tool, which turns a selected curve into joints. The script assigns whatever number of joints you wish to the selected curve and then smooths and binds the curves to the joints. That way, you can easily bend the hair without moving the curve CV's (**Fig06**).

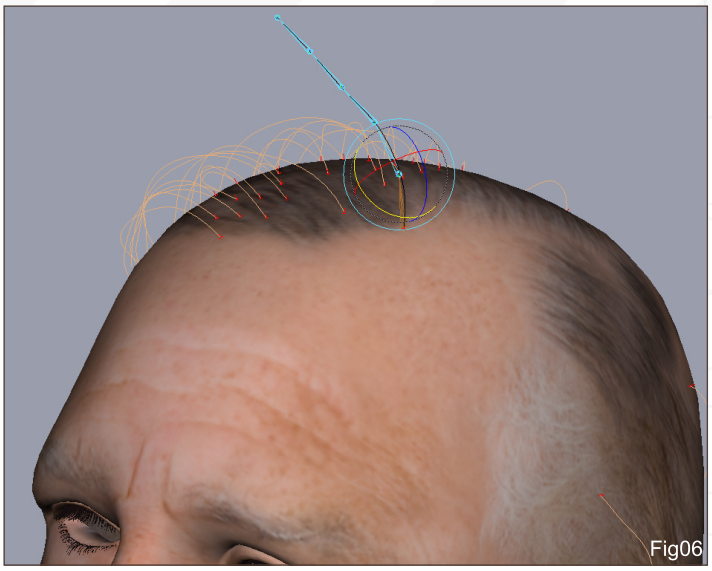
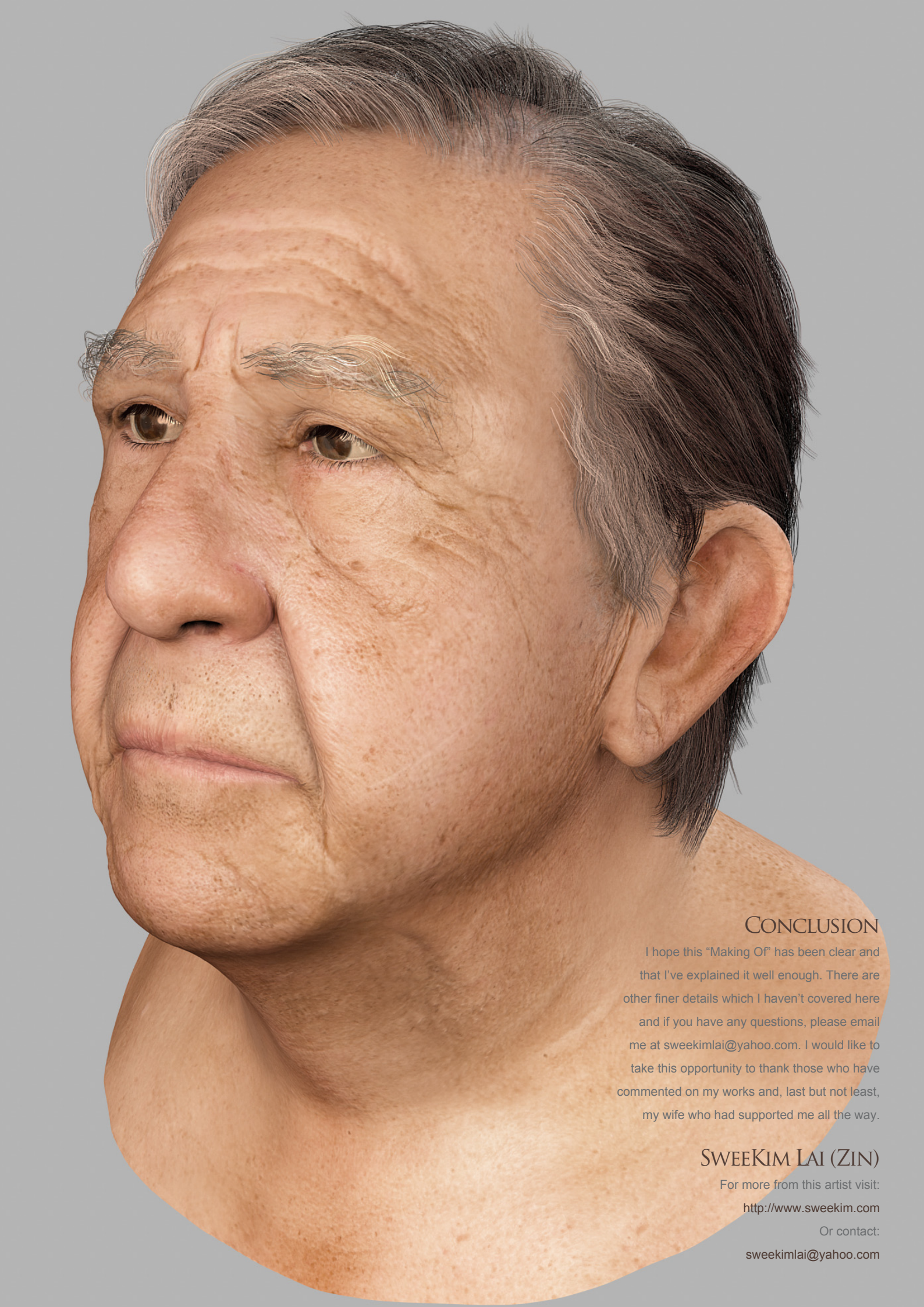

Fig06


Fig07

Lighting and rendering

The HDRI image was plugged into Mental Ray IBL node and served as the main environment lighting. I had one main spot light on the left, one bounce spot light on the right with lower intensity and one directional light as a back light. This enabled me to bring out the effects of sub surface scattering around the ear areas.

As for the render settings, I kept everything on their default settings, except for "Multi-pixel Filtering". I chose Lanczos with the value of 5 for both filter width and height because I found that this gave a sharper rendering output compared to other filter settings. Also, every time that you plug an image file into Maya, the default "Filter Type" is always set to "Quadratic", which means a certain amount of blur filtering is applied to the image. This may not always be a good thing, especially when it comes to the displacement map. Try rendering two images, with one using the default "Quadratic" filter and another one set to "Off". Compare the render results and you will see what I mean. I rendered the occlusion pass as another rendering pass to be composited at a later stage (**Fig07**).



Conclusion

I hope this “Making Of” has been clear and that I’ve explained it well enough. There are other finer details which I haven’t covered here and if you have any questions, please email me at sweekimlai@yahoo.com. I would like to take this opportunity to thank those who have commented on my works and, last but not least, my wife who had supported me all the way.

SweeKim Lai (Zin)

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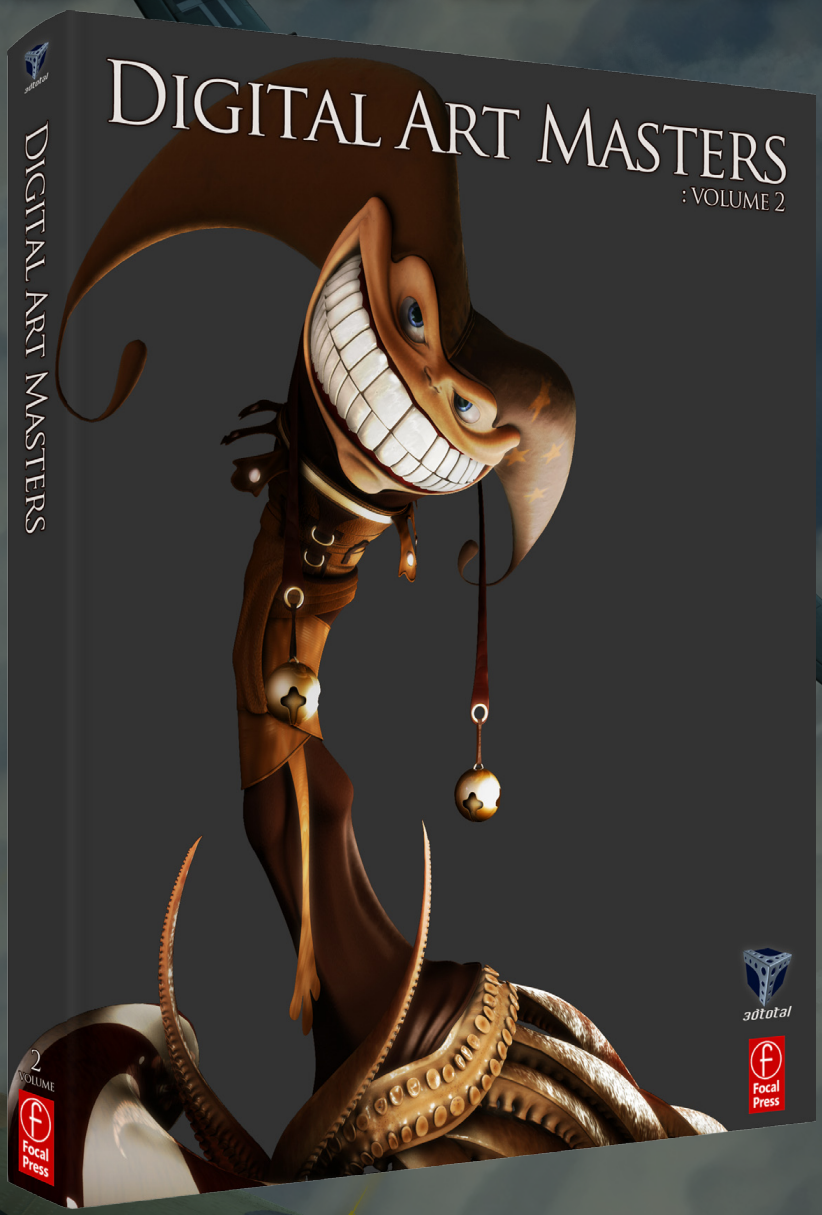


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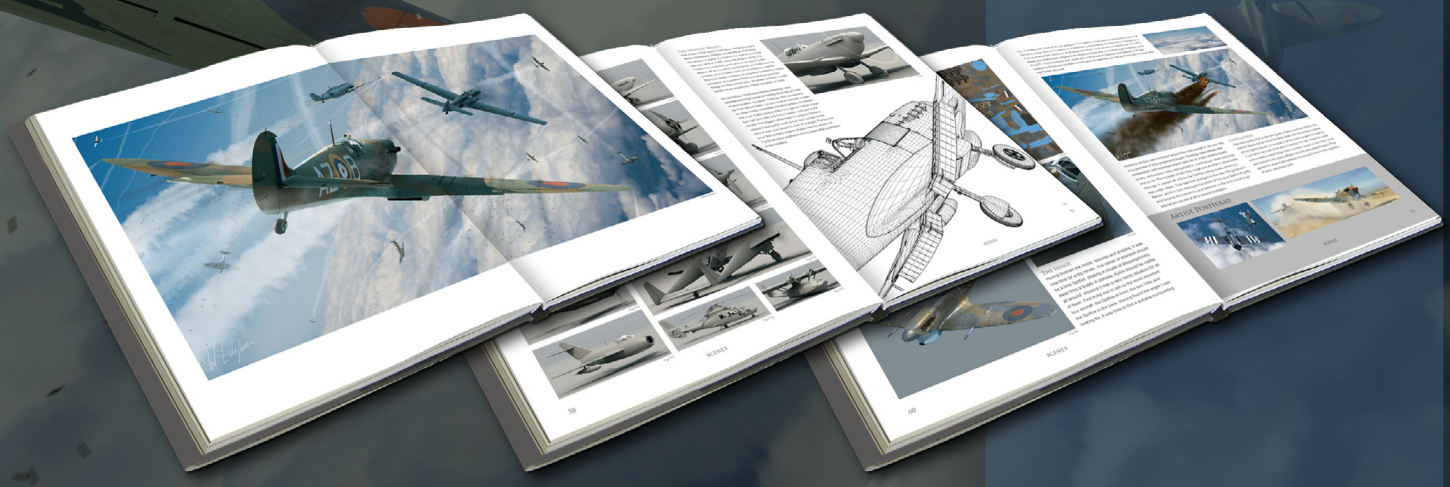


With the release of 3DTotal's new book, 'Digital Art Masters: Volume 2', we have some exclusive chapters for you...

The book is more than just an artwork book. Not only does it feature full-colour, full-page images, but each artist has described in detail, in their own words, the creation process behind their published artwork - and they've done it especially for this book!

This month we feature:

'Furball'
by Wiek Luijken





© Wiek Luijken

The following shots of the Furball book pages are featured here in full-resolution and can be read by zooming in...

Furball

By Wiek Luijken

Introduction



Like any traditional aviation artist, I start with inspiration to do a certain image. However, by the time the detailed models are done, you are a couple of months or more down the line. Most ideas either dilute or are added onto a big pile of ideas. In this case the combined modeling time for the Spitfire and Messerschmitts has been almost two years, with other models in between (see Fig.01a–h). One of the things I've always wanted to do was to create a big dogfight scene. The Battle of Britain is an obvious moment in history to depict such an image. Furthermore, I just love the Spitfire; it is a beautiful design with graceful lines that looks great from any angle.

When I started the model of the Spit, I had several goals. I wanted the model to be very accurate and a true homage to Mitchell's design. Another goal was to make various types from the early model Spit (Mk. I) all the way to the end of the war (Mk. IX), so I had flexibility with my renders. Then, as images go, a few needed to be done: a big dogfight with Messerschmitts during the Battle of Britain, a take off from a desert airstrip, a dogfight over Malta, Spits attacking an ME109 bomber escort while the Hurricanes below deal with the bombers, shooting down a V-1, escorting B-17s, fighting with FW190s over Dieppe, attacking shipping at low level, landing on a carrier, and the list goes on and on. So, first things first, I had to create a good enough model and create a dogfight render...



Fig.01a



Fig.01b



Fig.01c



Fig.01e



Fig.01d



Fig.01f



Fig.01g



Fig.01h

The Spitfire Model

The model of the Spitfire was done using Luxology's Modo completely. Details include the pin that holds the wheels in place, the knot in the rope to close the canopy, various rivets, separate engine plates, the holes in the machine guns, and so on (see Fig.02). Almost all of it is still in subdivisions, as I hate freezing meshes, plus it makes your UV process less painful. The final model comes in at around a hundred thousand polygons, plus another forty thousand polygons for things like the cockpit dials. At render time this usually weighs in at around one million polygons or more.

As reference, I have used factory drawings, very detailed drawings based on factory drawings and lots of photographs. As usual, drawings don't always line up from various sides, so you have to base the shapes on what mostly resembles the photographs. As always, the most challenging problem is to get the overall shape just right and after that it is a breeze – just add in the details. The biggest advantage of using subdivisions without freezing the mesh is that you maintain better control over your shape in case of changes. The fun bits were the complex organic shapes like the wheel hub. Fig.03 shows a wireframe of the model after subdivision in the renderer.



Fig.02

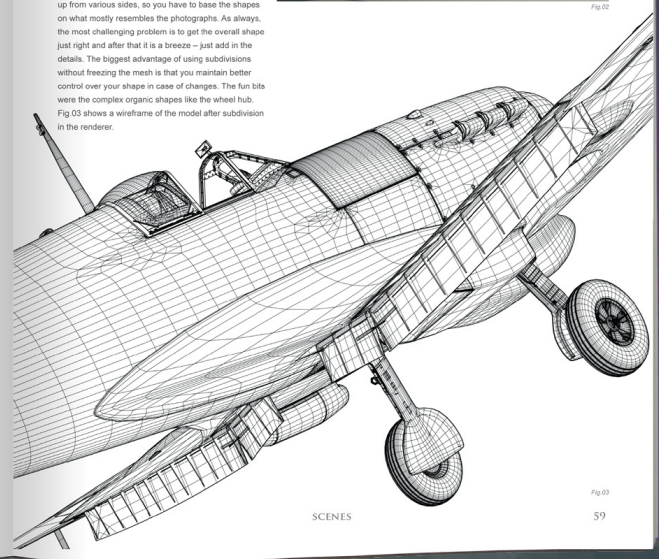


Fig.03



The Spitfire UV-Mapping and Texturing

For the UVs the route was slightly different from my usual approach. Instead of doing bits with planar maps or multiple UV sets, I wanted to end up with only one map that would work for all sub variants. This made it easier to make a new set of colors/markings for new renders and allows the model to be used in different renderer software with ease. To achieve this, the goal was to make a UV-map with every single object including rivets and unfolded without any stretching. Then to make texturing feasible on a more detailed level, I needed specialist maps for each part. So I ended up creating the specialist unfolded map per part first, later combining all of those in one big, new UV-map with space to spare for new parts to be added later for different versions of the Spitfire (Fig.04).

Fig.04

After having done the model and unfolding all the UVs, it was time for texturing. This was the first time I used 3D painting to do the texturing of an aircraft. All the texture painting was done in Modo, with final touchup in Photoshop. This worked very well in view of the separate panels (Fig.05) as you can just take one panel at a time. The first thing to do was to paint the overall camouflage pattern, as standard on the Spitfire, and after that came the dirt and stains map, scratch map. All were done in 3D on individual panels, then baked onto the one big UV-set for manipulation in Photoshop (Fig.04). The different painted maps were used for the specular, reflection, diffuse, bump and color maps in different ways, combined with good old brushing in Photoshop and resulted in the final texture set which is easily adjusted for individual aircraft with an even amount of detail across the model (Fig.06).

Fig.05

Fig.06

The Image

Having finished the model, textures and shading, it was now time for a big render. The center of attention should be a lone Spitfire, chasing a couple of Messerschmitts away from a buddy in distress. Action should be visible all around, showing it was a very hectic situation for all of them. First thing was to set up the most important four aircraft: the Spitfire in front, the two 109s and the Spitfire in the back. Having found the angle I was looking for, it was time to find a suitable surrounding.

For a render with a lot of things going on, it is useful to start with a background that is not too distracting, but at the same time interesting and suitable for the historic background. Having a sizeable collection of photographs that I took on various flights over the UK, I chose one that mostly shows thick cloud and blue sky, a common sight in British skies (Fig.07). This being too dull, even with a lot of action depicted, the background was rotated to fit my composition to help give the feel that you are up there with the boys and not flying "easyJet".

Fig.07

Fig.08

Added to all this was the furball around the main aircraft in 3D; then the long process of post-processing began. Markings were altered after consultation with historical experts and lots of cross-referencing with books, and vapour trails were painted in, machine gun shells rendered, and so on. The trickiest bit with this image was whether to show battle damage. It started off with the far Spitfire trailing smoke, showing it was under attack. That was then changed to the main 109 going up in flames, which in turn destroyed the profile of the close Spitfire (Fig.08) and became the instant focus of attention. In the end I chose to go without any smoke at all to prevent distraction.

Conclusion

After having done this render (along with a few more of the Spitfire), this one still stands out as one of the better ones I did. Not because it shows off the Spitfire so well, or because of all the work that went into creating it, but rather because of the action it depicts. For me it shows the chaos and inevitable mortal danger that must have caused so much fear, stress and sorrow for the guys battling it out in the skies above England. They gained the respect and gratitude of many and live on in the imagination of some, including myself.

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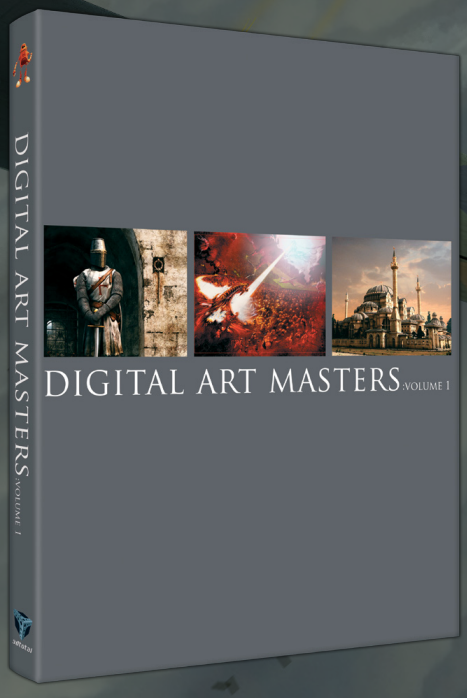
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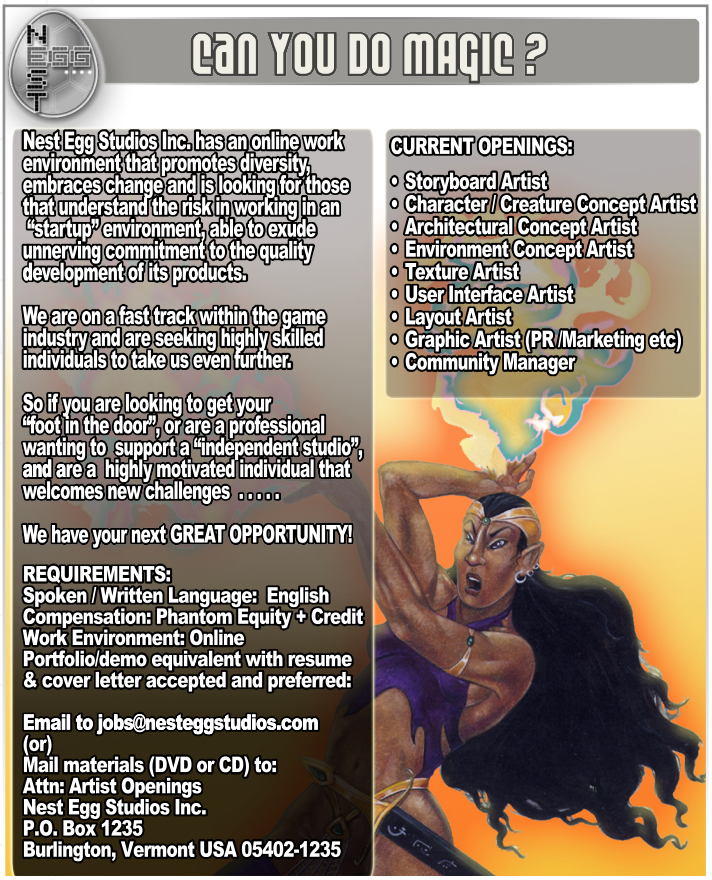
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This series aims to offer a comprehensive guide for creating a finished car to people who are new to this type of exercise, but is not suitable for beginners who are not familiar with using 3D software. The tutorials do not detail every single step of adding individual edge loops and vertices, but they do endeavour to outline each important stage and explain the crucial techniques necessary to following the exercise.

The schedule is as follows:

Issue 029 January 2008
MODELLING THE CHASSIS - BASICS

Issue 030 February 2008
MODELLING THE CHASSIS - DETAILS

Issue 031 March 2008
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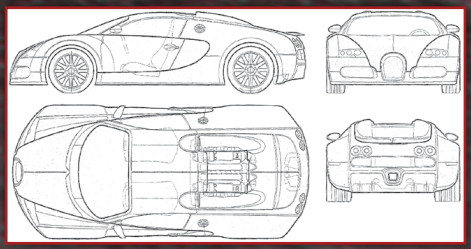
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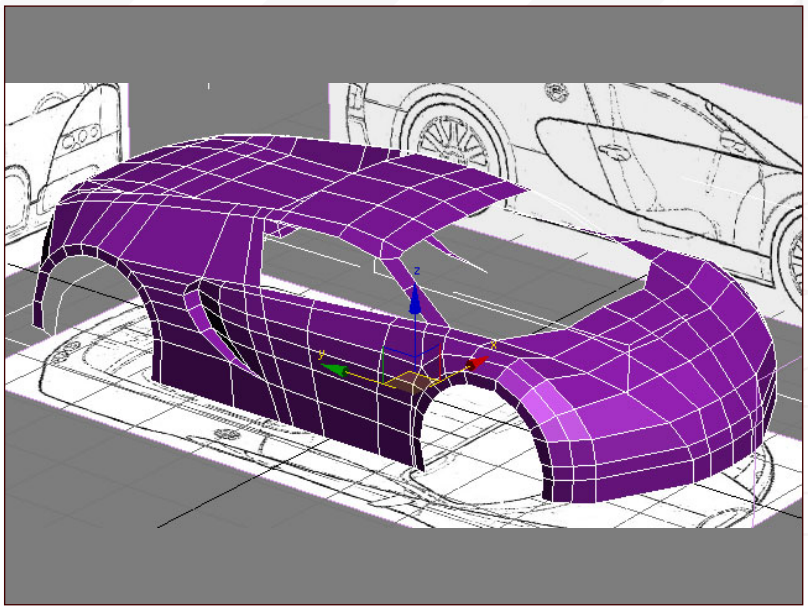
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Modelling the Chassis Part 2 - Details

In this issue, we'll be working with the basic mesh that we finished in the last tutorial. We'll be adding all the details and edge loops necessary to have the mesh represent the form of the car and we'll also add a meshsmooth modifier.

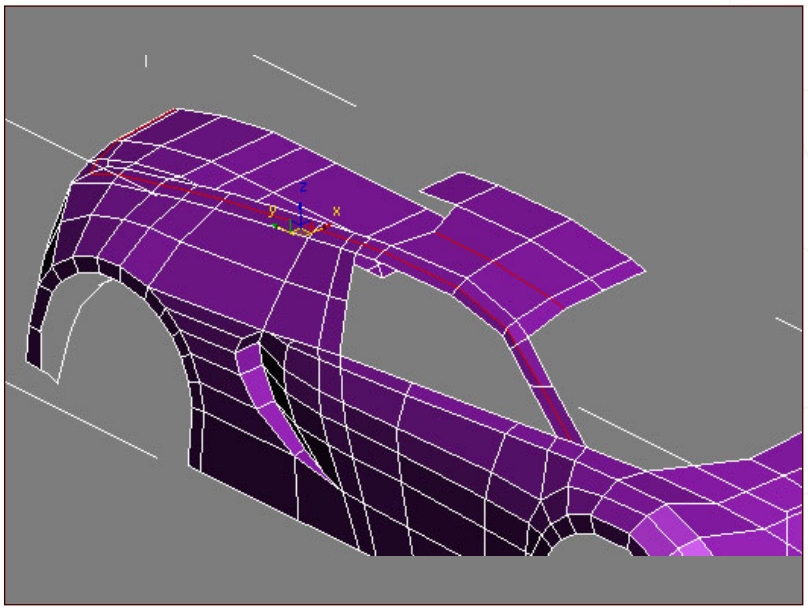
If we just start modelling now and I'll try my best to explain what I'm doing. Now we start with the mesh that we finished in the pervious tutorial. When I modelled this mesh I always had the blueprints shown but just to make the screenshots easier to read I have hidden them (**Fig01**).

Fig 01



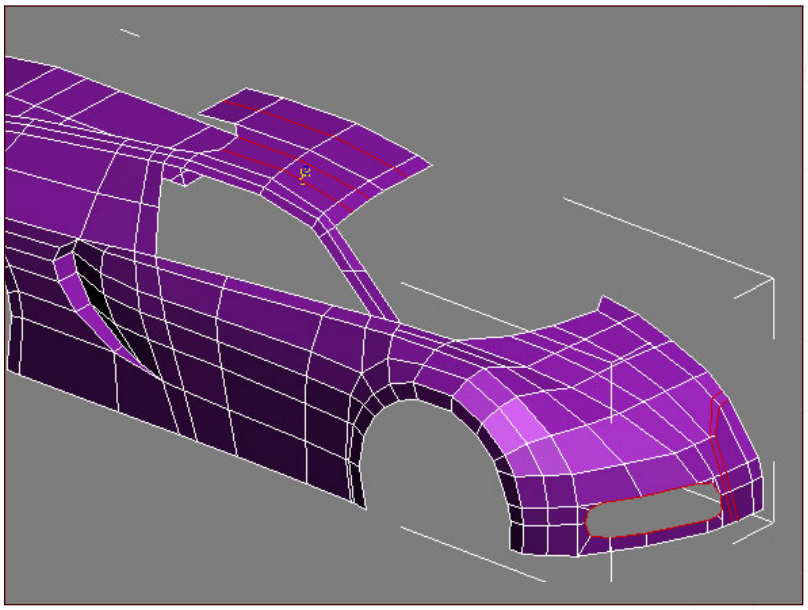
Add these edges (**Fig02**).

Fig 02



Cut in the air intake in the front and delete the faces (**Fig03**).

Fig 03



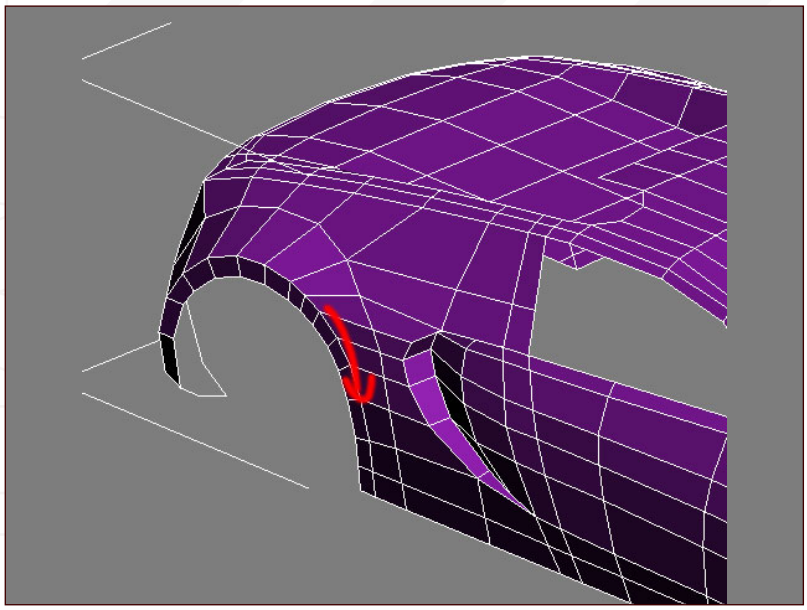


Fig 04

Cut another edge loop to change the flow (**Fig04**).

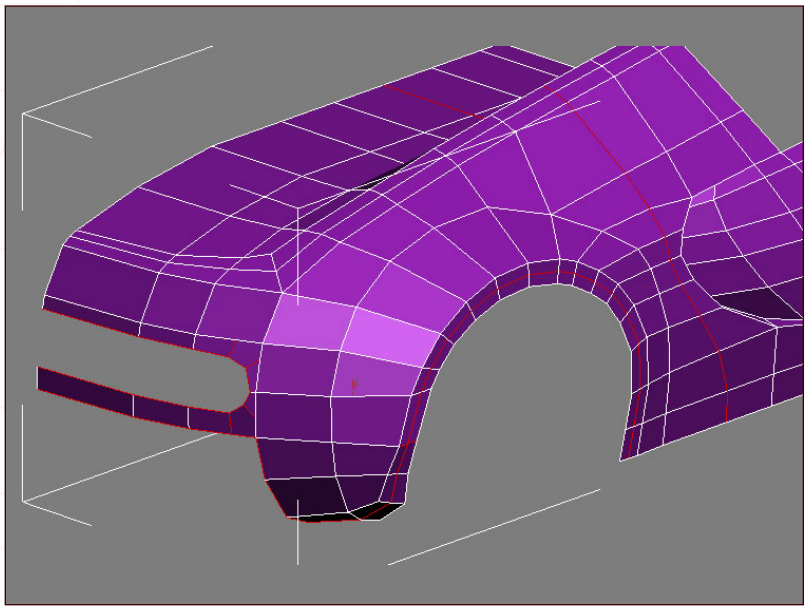


Fig 05

Delete the lower polygons in the back and cut in the gap shown in the figure (**Fig05**).

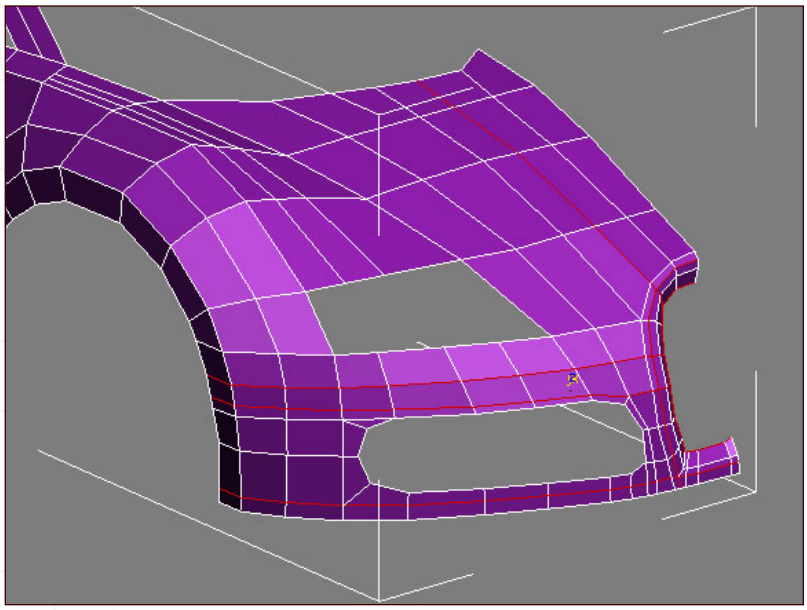
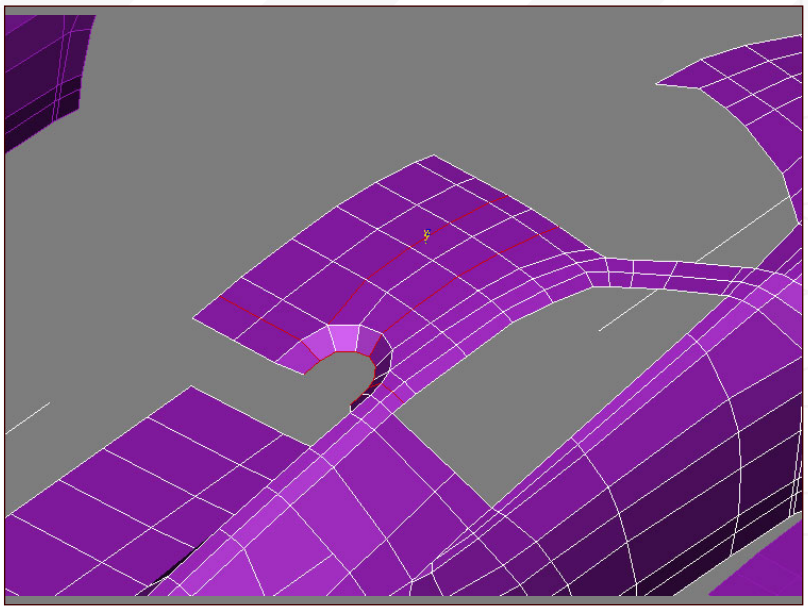


Fig 06

Add an edge loop around the grille then extrude it inside and delete the faces (**Fig06**).

Do the same thing with the roof - add the edges and extrude in the gap (**Fig07**).

Fig 07



Add more edges and extrude the front air intake. Make sure that after you extrude anything, you correct the position of the newly created vertices. This will make it easier to add detail later without having to fix anything (**Fig08** & **Fig09**).

Fig 08

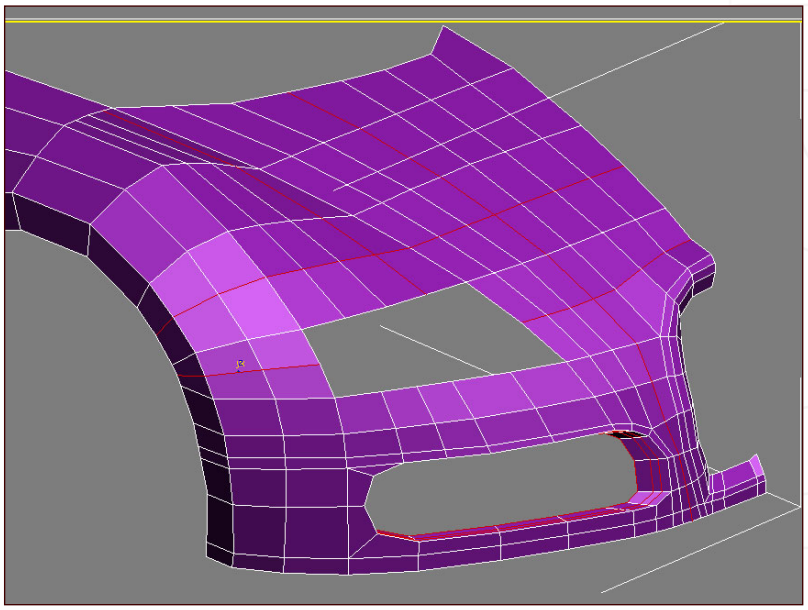
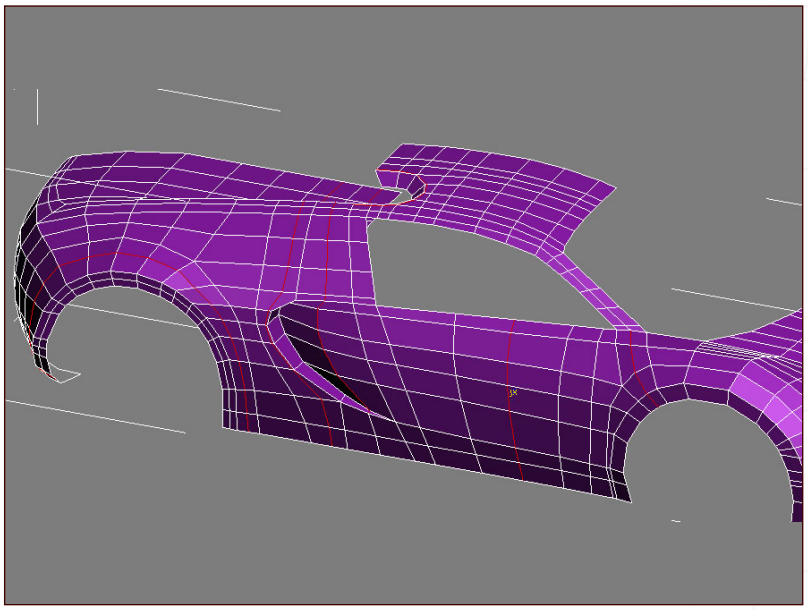


Fig 09



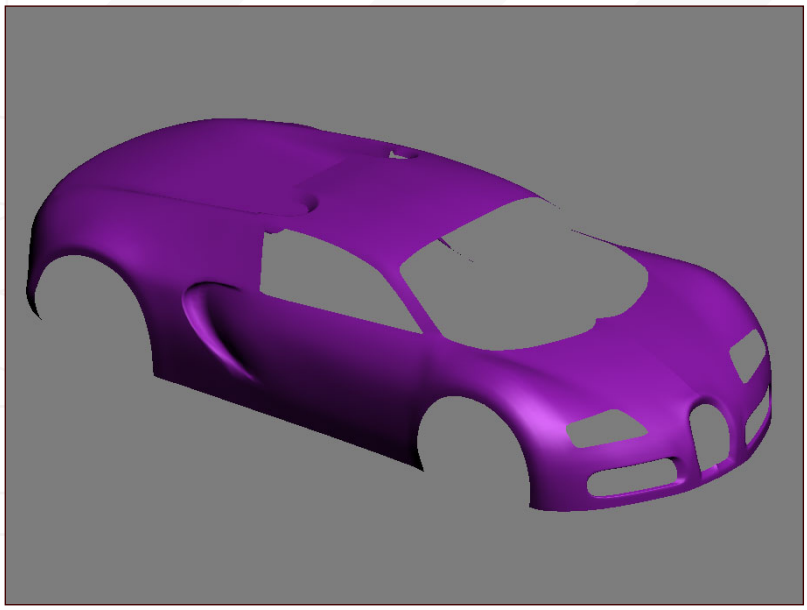


Fig 10

Before adding more and more details it might be a good idea to take a look at what you've done so far and maybe add a quick meshsmooth modifier. It's ok to go back and fix bits - I'm constantly looking at the model and making tiny changes. As you can see now, the 3D model still has some creases around the front wheel area, side air intake and in other places but thats due to the fact that we haven't finished refining the topology. Overall it looks going in the right direction (or to be more accurate - I hope its going in the right direction!) (**Fig10**).

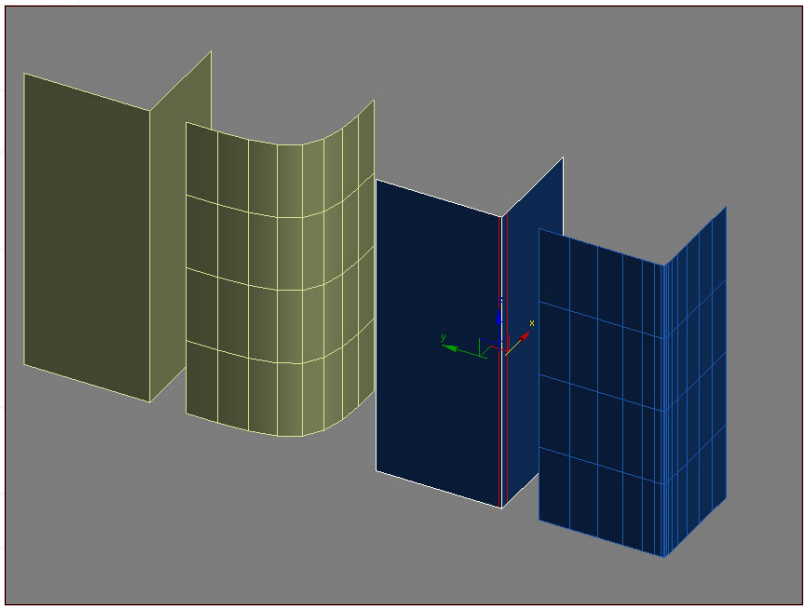


Fig 11

Making edges which are sharp but not razor sharp is very easy: you simply need to add an edge loop. There's no need for anything fancy; as you can see here, I made the curved corner sharp just by adding 2 edges. You can experiment more with the effect by adding edge loops to make creases (**Fig11**).

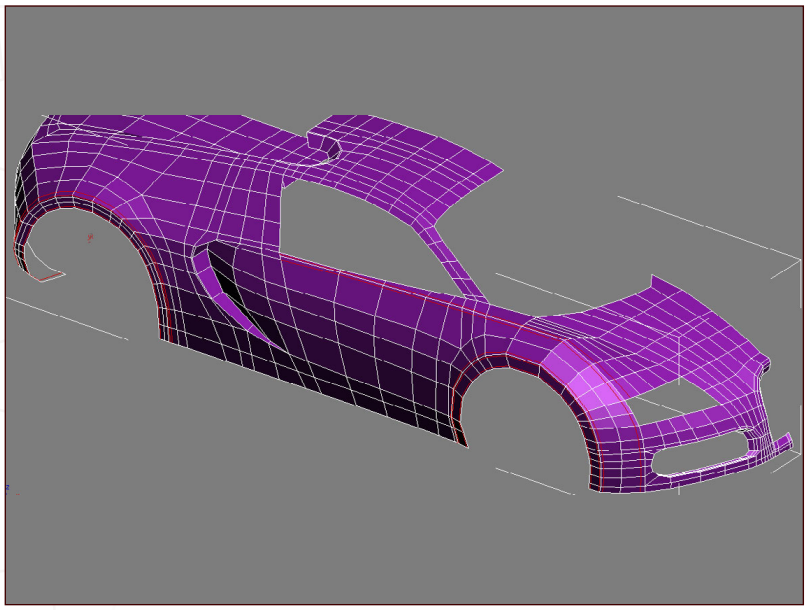


Fig 12

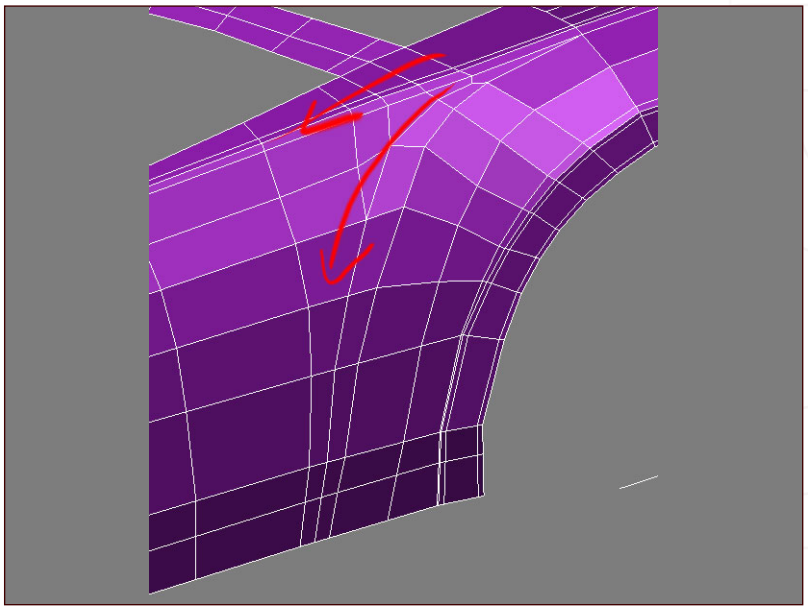
I've added more edge loops around the wheel gaps and body line to have our model follow the same curvature that we can see in the reference image (**Fig12** & **Fig13**).

Fig 13



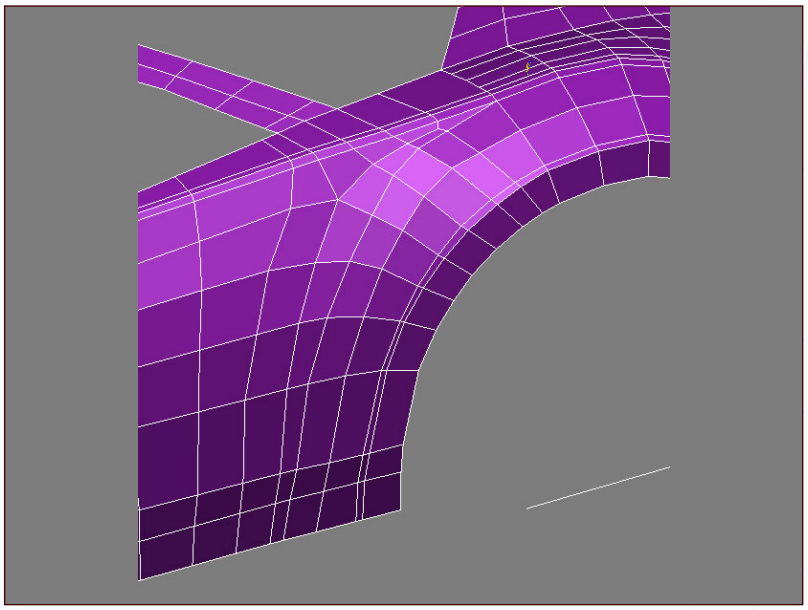
The topology around the area you see in the image gave a strange result when I applied meshsmooth, so I've tried to change it manually (**Fig14**).

Fig 14



To fix the tri, I added another edge loop and moved the vertices to provide a better flow (**Fig15**).

Fig 15



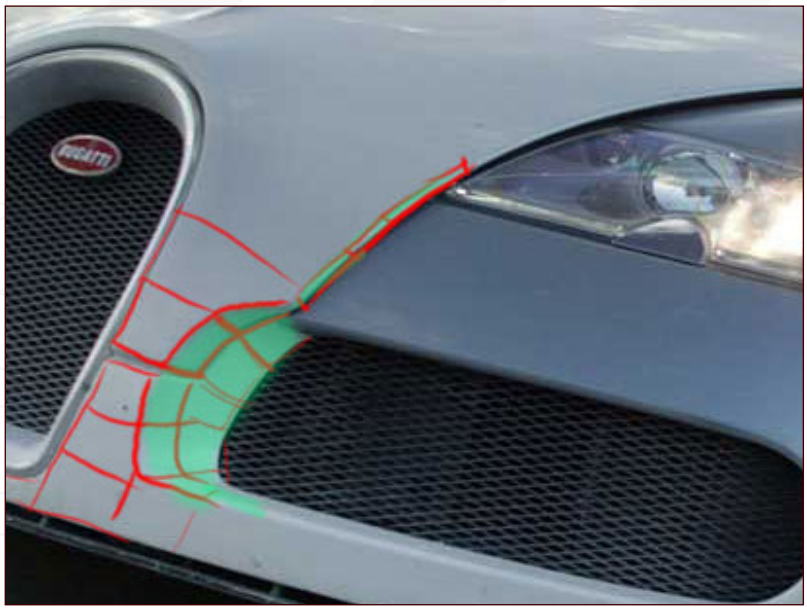


Fig 16

Now making the hood needs a bit of attention. The actual form of it is very simple, but it can be confusing if you don't take enough time to look at the reference image (**Fig16**).

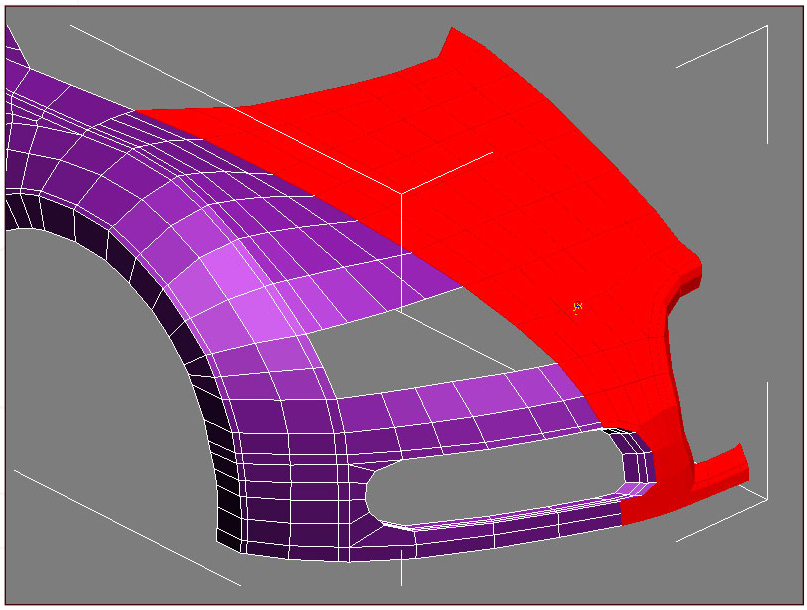


Fig 17

I've just done a very quick drawing on top of car in Photoshop to make it easier to read. It appears that the hood is extruded out a bit and that the air intake was cut after the extrusion. Since we have already made the cut into the air intake, we can just extrude those faces and get the same form (**Fig17**).

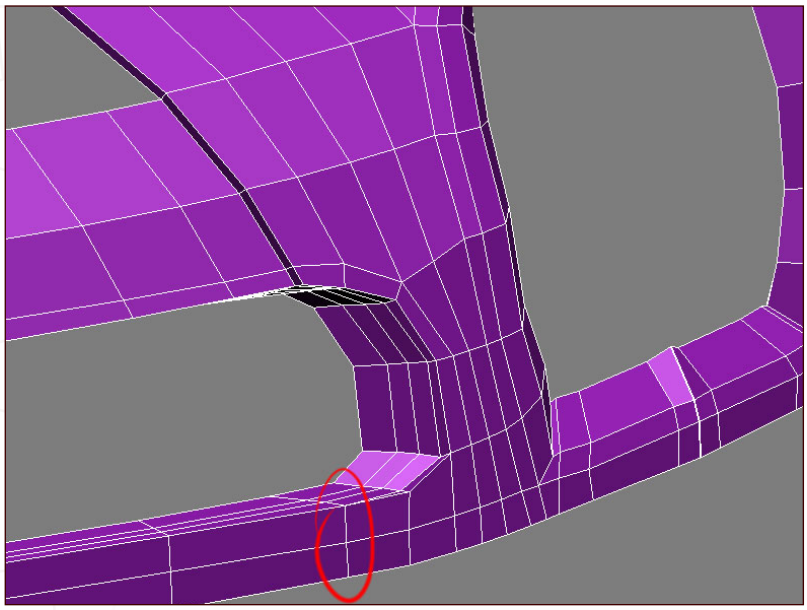
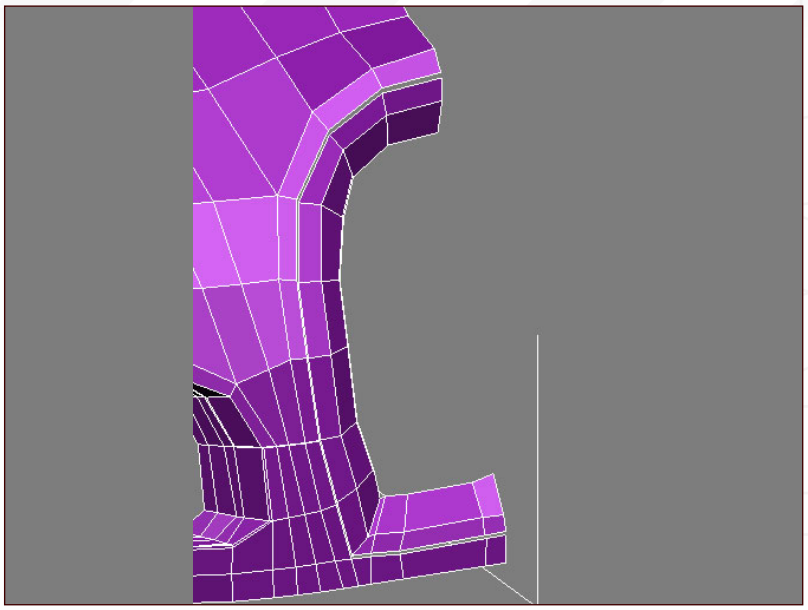


Fig 18

Since this part of the reference image is smooth, merge the vertices in the red circle to get that shape and not have an extruded edge. You will have a tri as a result but you can easily fix it later (**Fig18**).

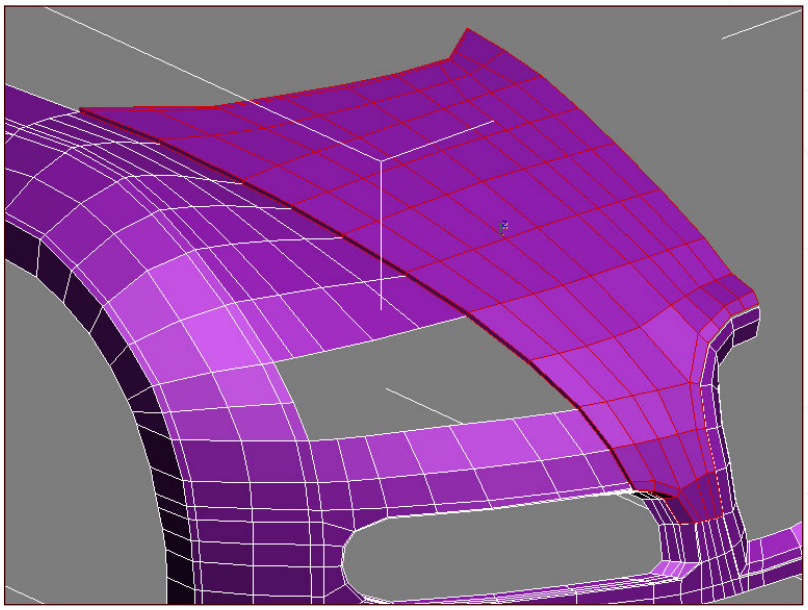
Detach the grille frame (**Fig19**).

Fig 19



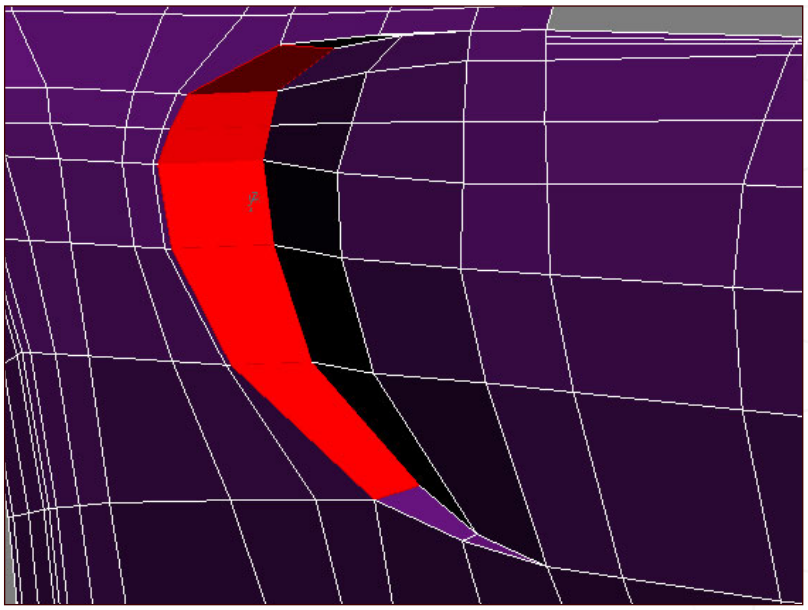
Detach the hood faces and add a couple more edge loops to the hood (**Fig20**).

Fig 20



Delete the faces of the side air intake and take the vertices of the door inside a bit (**Fig21** & **Fig22**).

Fig 21



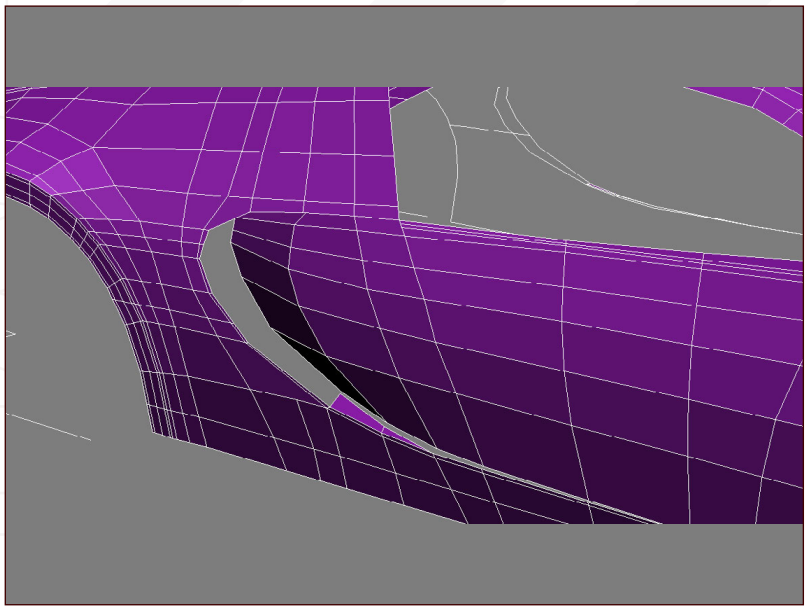


Fig 22

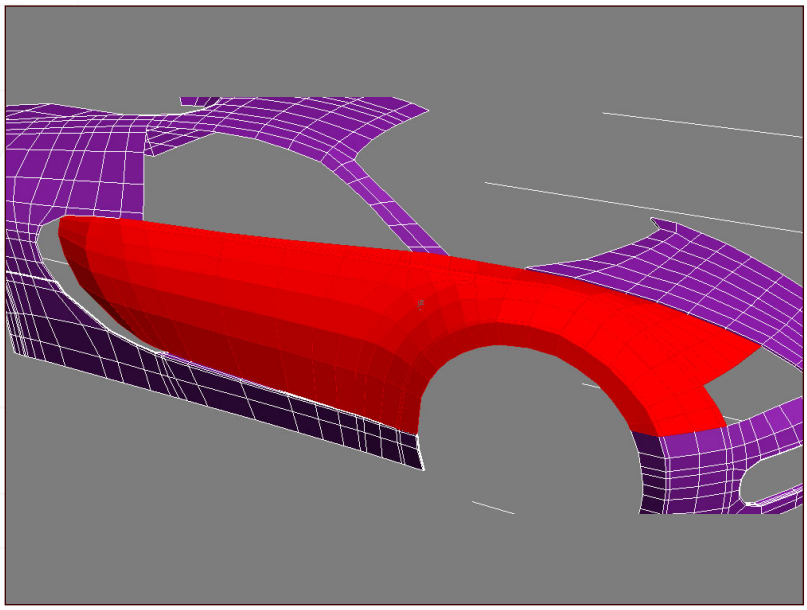


Fig 23

Detach the side body panel faces and lower side skirt. Extrude the edges on the lower piece and move the vertices on that area just as in the image (you can look at the reference image to see that the real car has similar topology). Add an edge loop so that when you add a meshsmooth, the chamfered edge looks sharp (**Fig23, Fig24, Fig25, Fig26, Fig27** and **Fig28**).

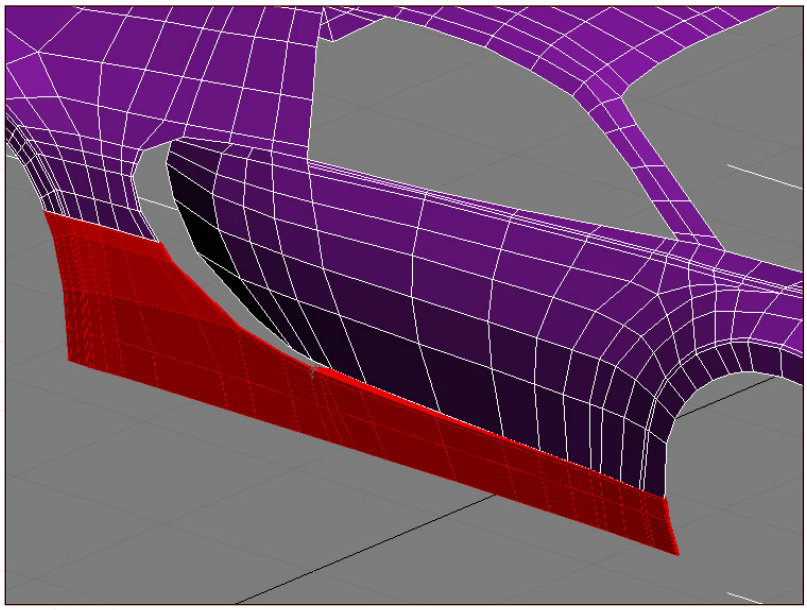


Fig 24

Fig 25

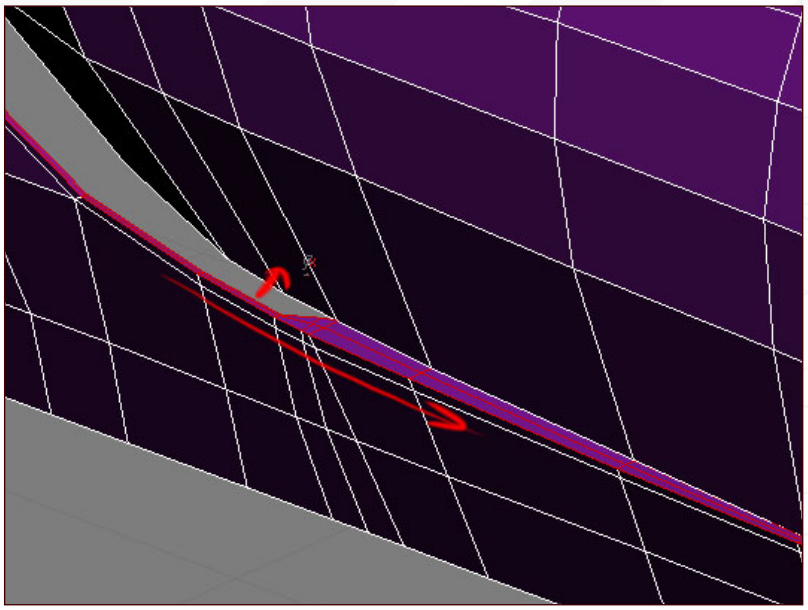


Fig 26

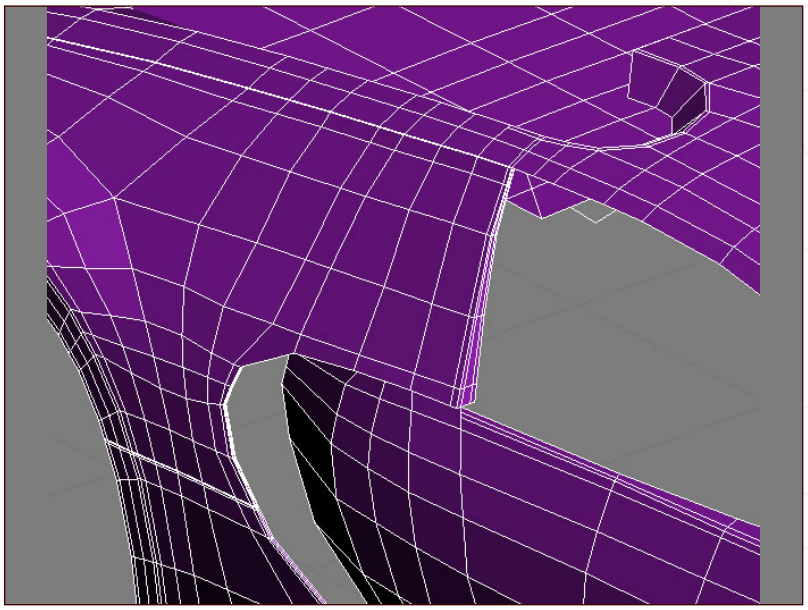
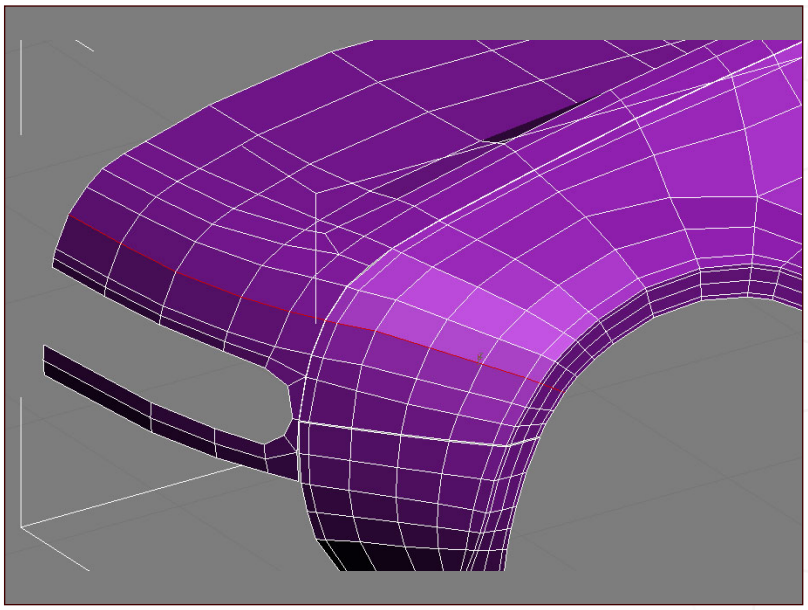


Fig 27



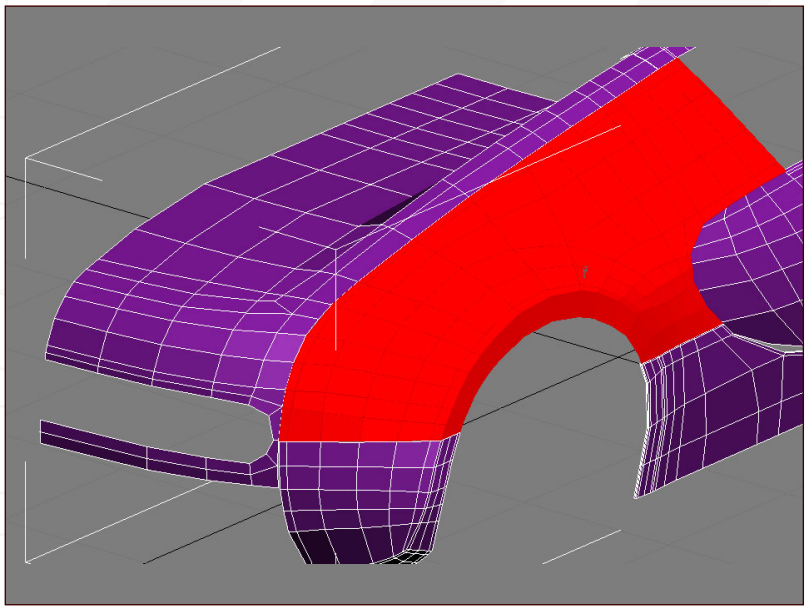


Fig 28

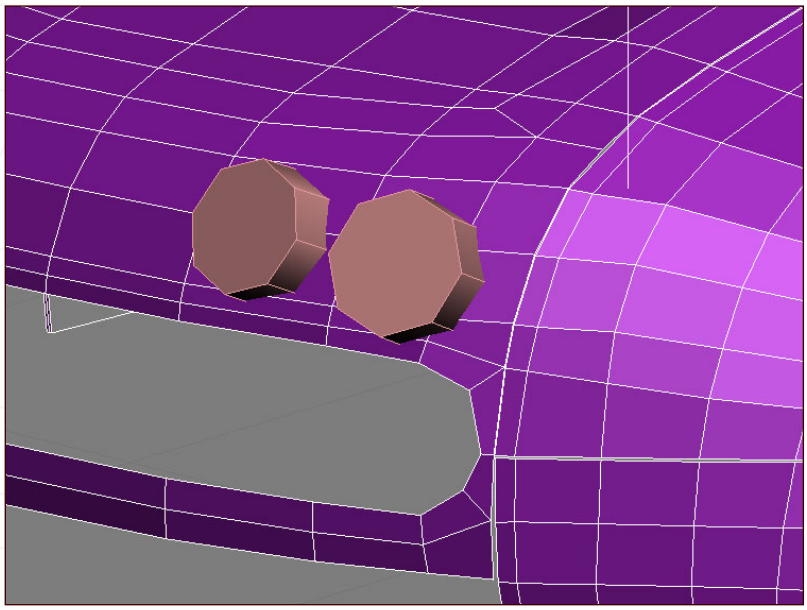


Fig 29

Now to make the back lights. To get that circular shape cut, I usually use a quick reference object as a cylinder, create an 8 sided cylinder, make the cuts on the car body and then try to make the edge loops correct (**Fig29, Fig30, Fig31** and **Fig32**).

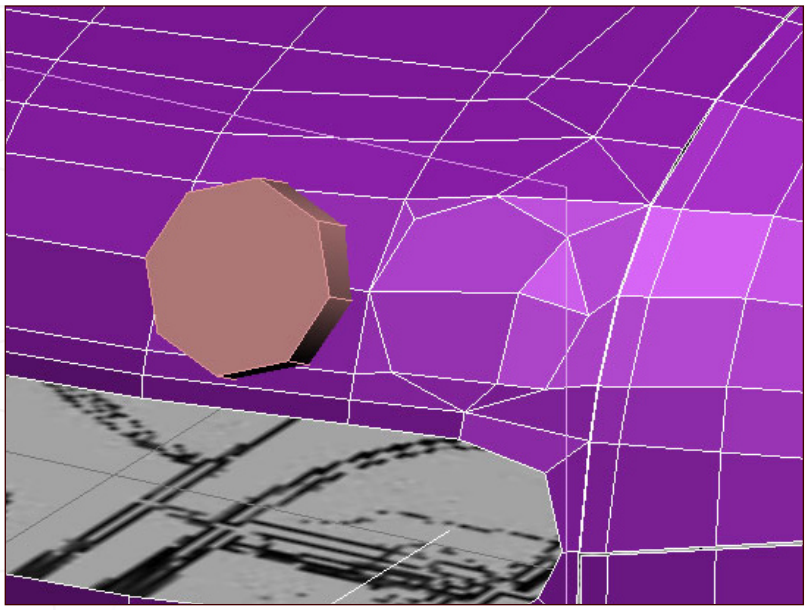


Fig 30

Fig 31

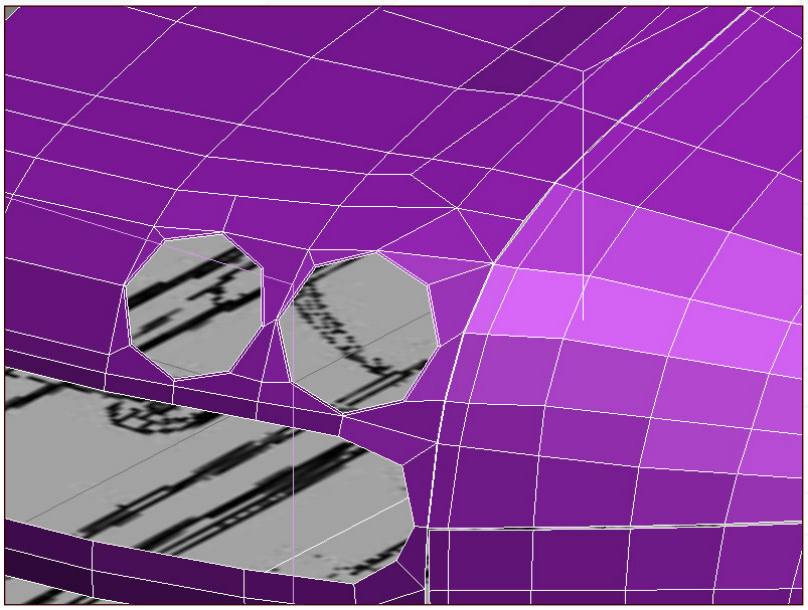
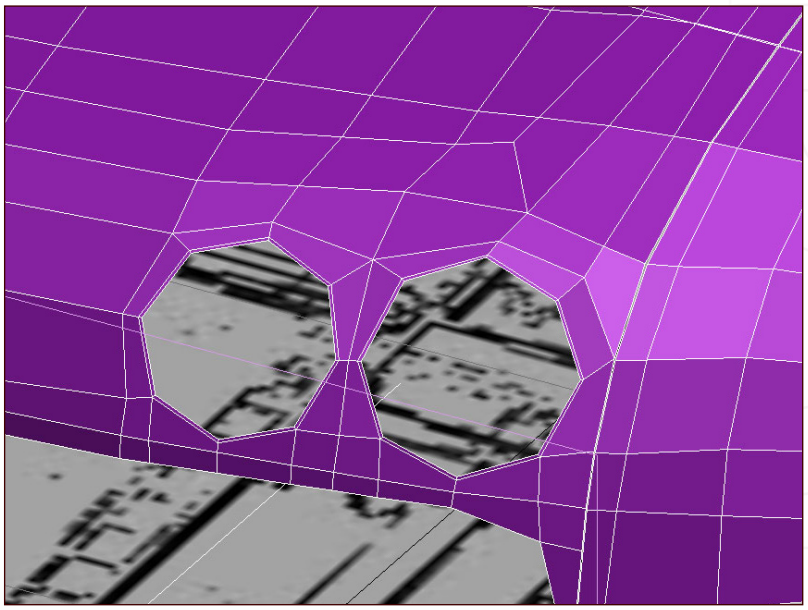
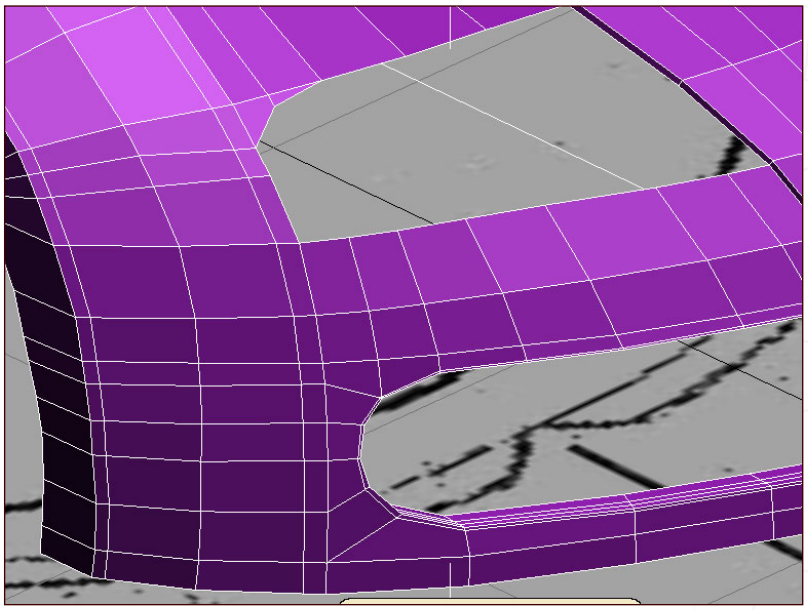


Fig 32



Back to the front light (**Fig33** and **Fig34**).

Fig 33



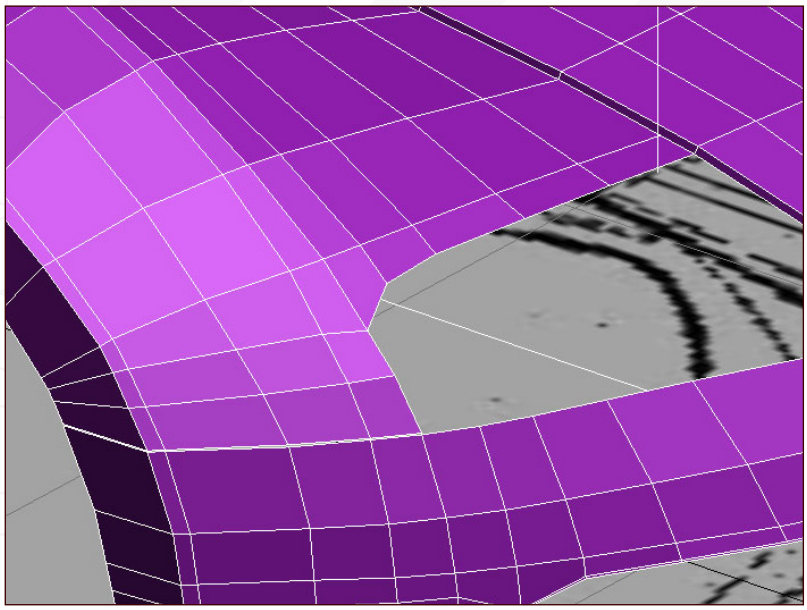


Fig 34

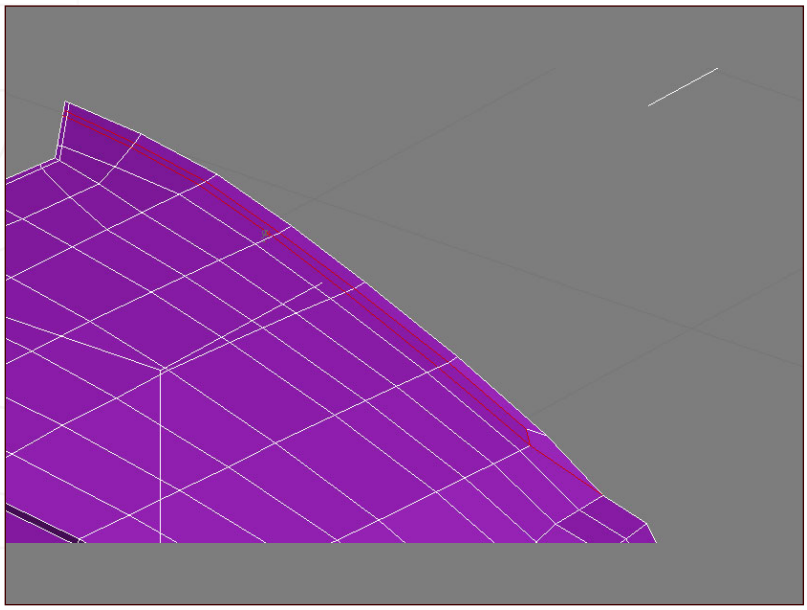


Fig 35

On the hood, I added couple of edges to get that crease that you can see in the reference images (**Fig35** and **Fig36**).

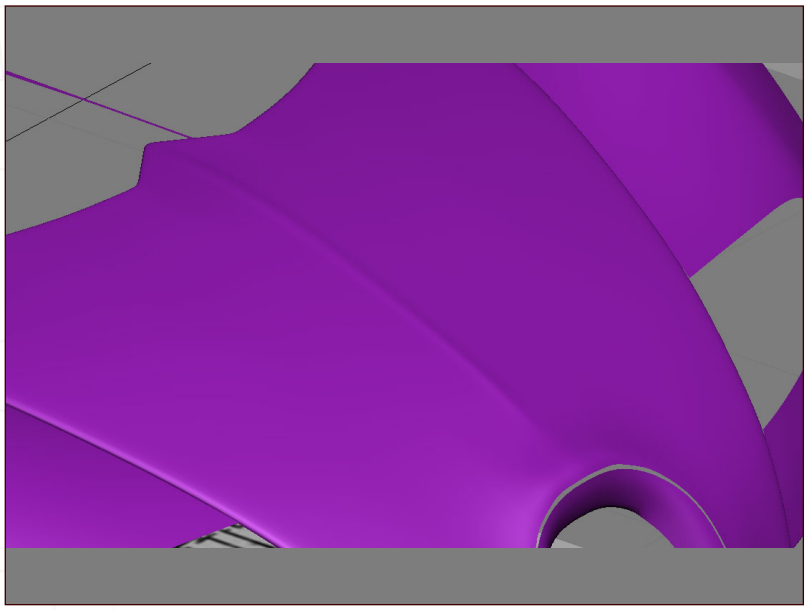
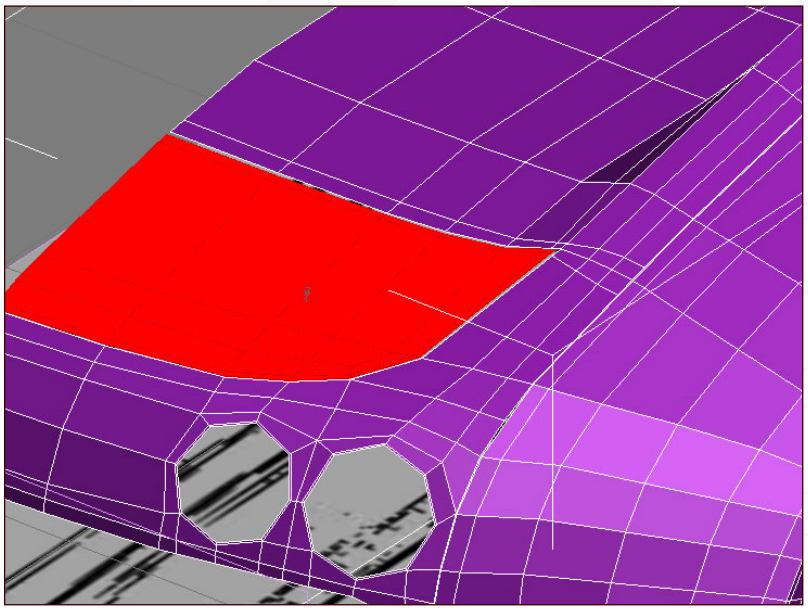


Fig 36

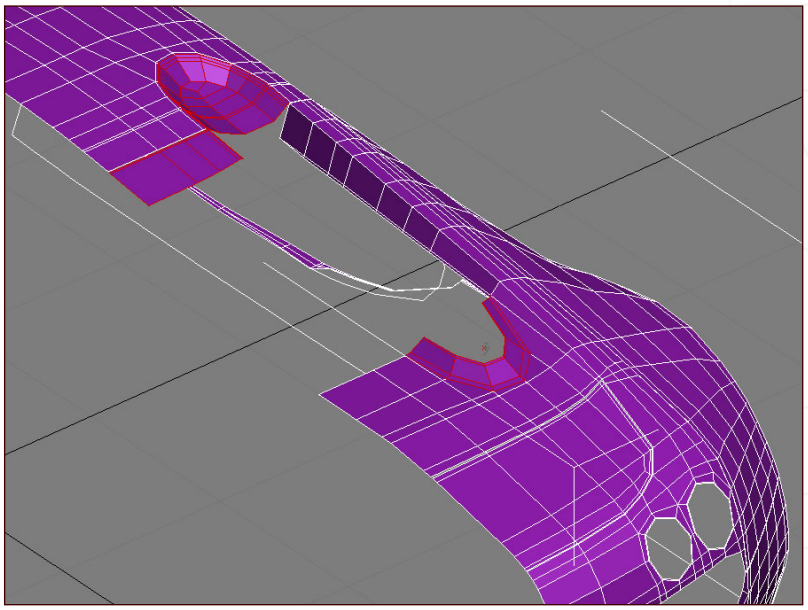
Detach the back aerofoil (**Fig37**).

Fig 37



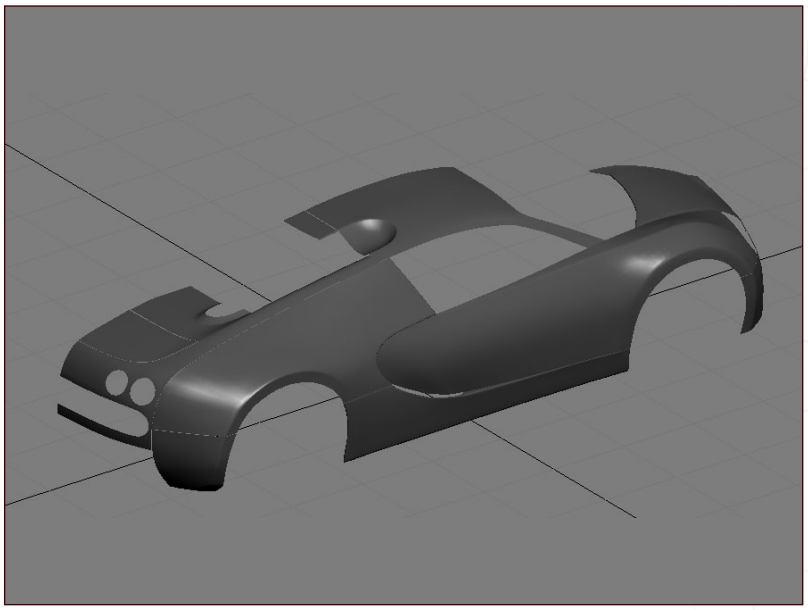
For the back part, I deleted the faces where the engine will be and extruded some edges to create what you see in the next image (**Fig38**).

Fig 38



This is how it looks like so far after adding meshsmooth (**Fig39**).

Fig 39



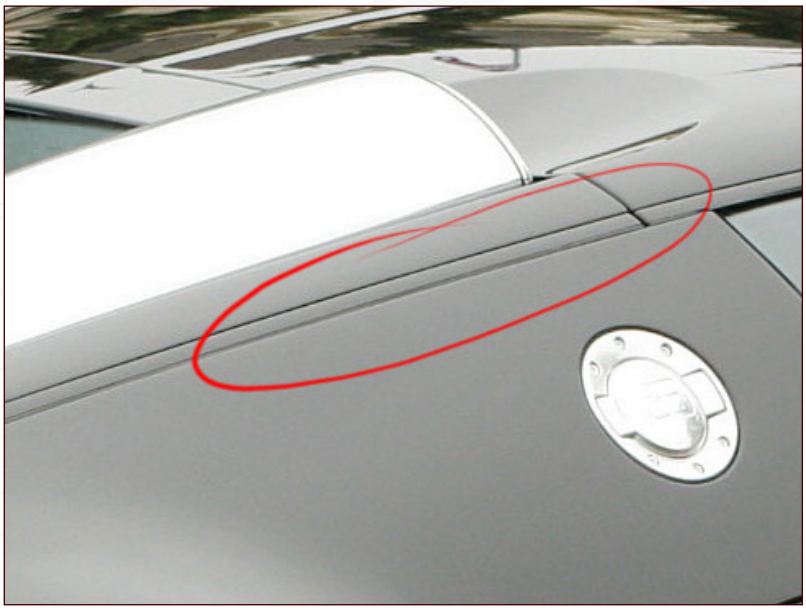


Fig 40

I assigned a material to the model so that we can see it better and catch anything that doesn't look right. It's just a default material with a specular and a glossiness level of 80. Feel free to use any material that you feel shows the model better (**Fig40**).

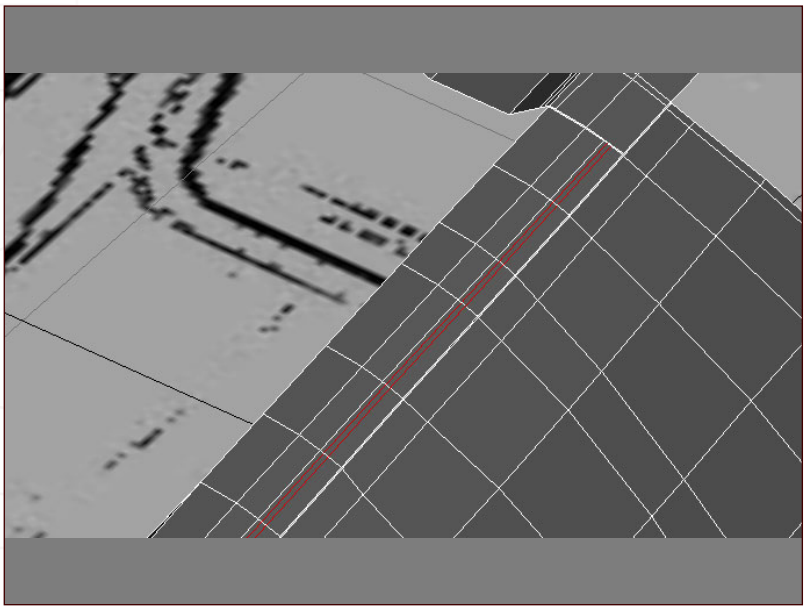


Fig 41

To make that line I simply added an edge, chamfered it twice then picked the loop of the polygons in the middle and extruded them inside (**Fig41** and **Fig42**).

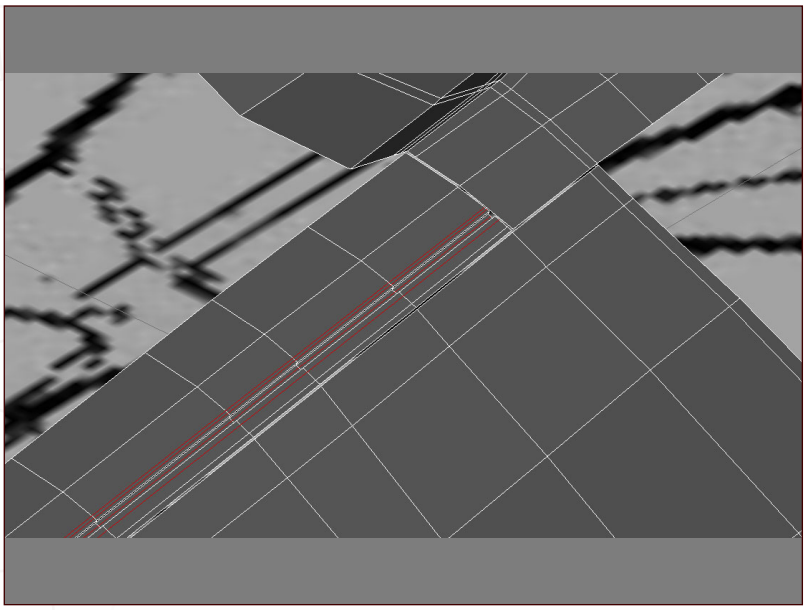


Fig 42

Make a quick topology in the back (**Fig43** and **Fig44**).

Fig 43

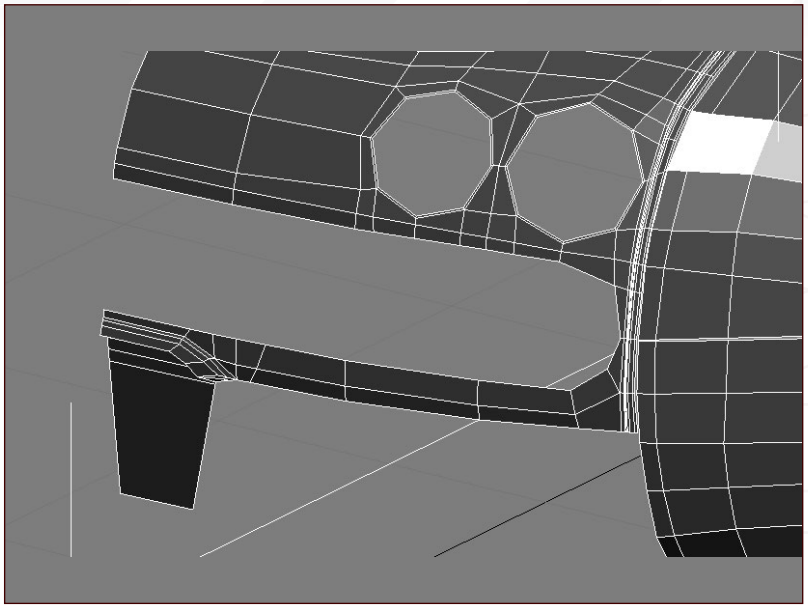
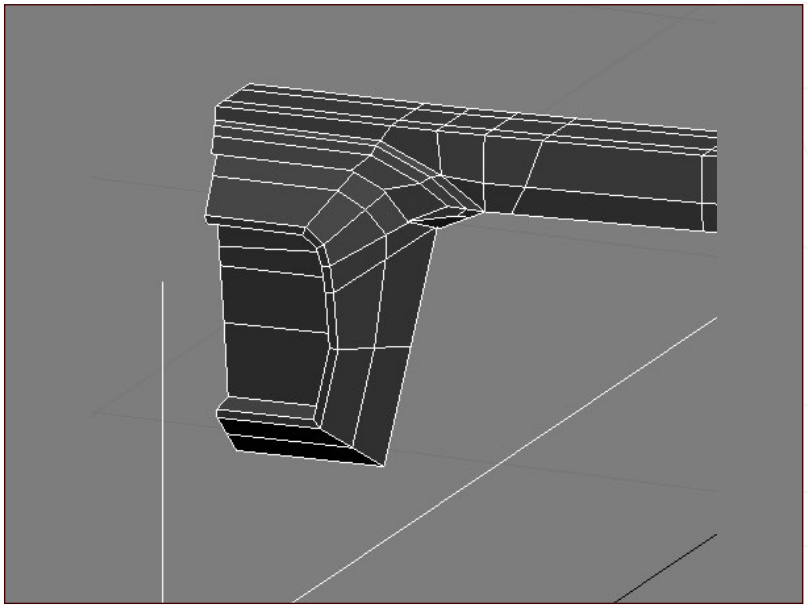
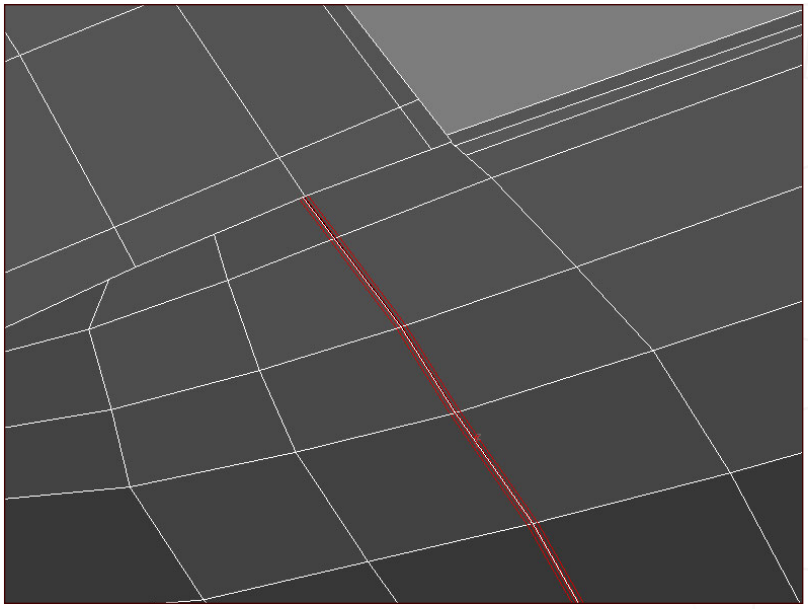


Fig 44



Next comes the door grooves. Treat them in the same way that you do when you want to build a sharp edge. Select the edge loop, chamfer it twice and then extrude the polygons loop in the middle. If you still feel that the door grooves aren't sharp enough after applying meshsmooth, simply add another edge loop (select 'edge ring' then connect with shortcuts alt+r and ctrl+shift+e) (**Fig45** and **Fig46**).

Fig 45



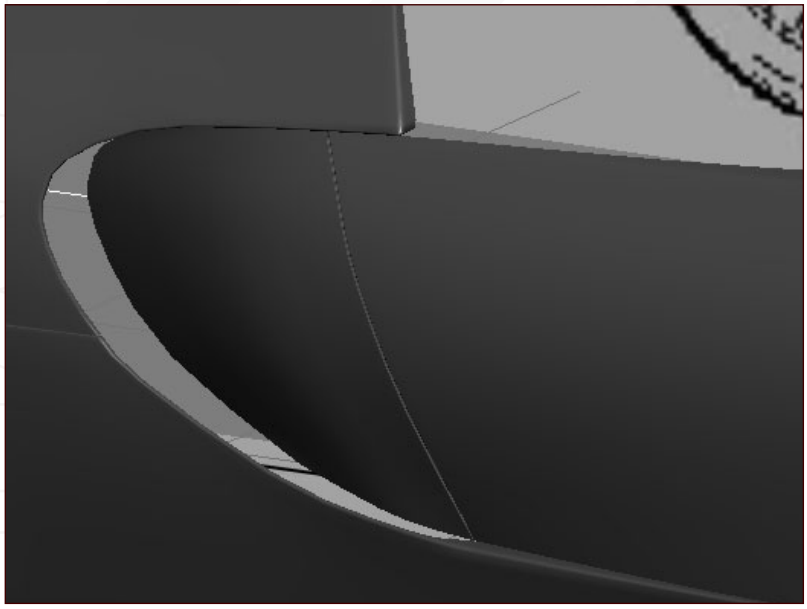


Fig 46

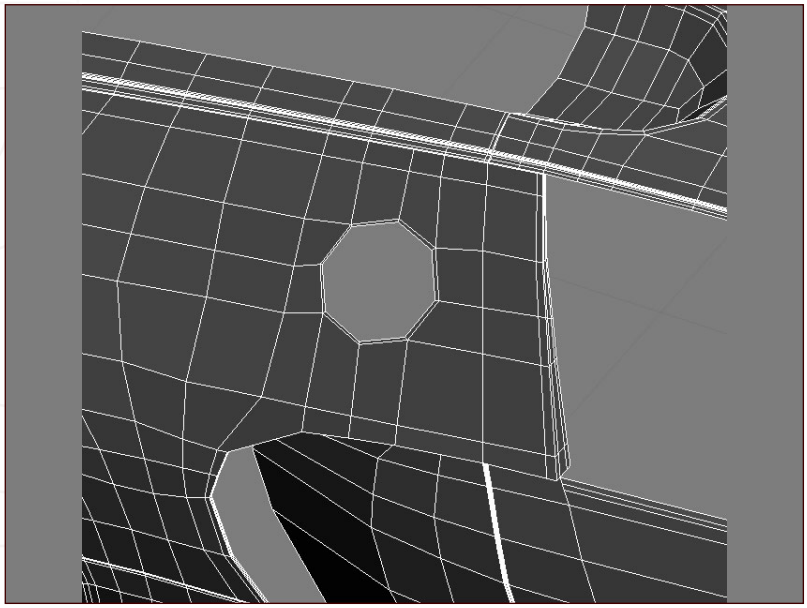


Fig 47

For the fuel cap just use an 8 sided cylinder for reference and make the cuts as shown (**Fig47**).

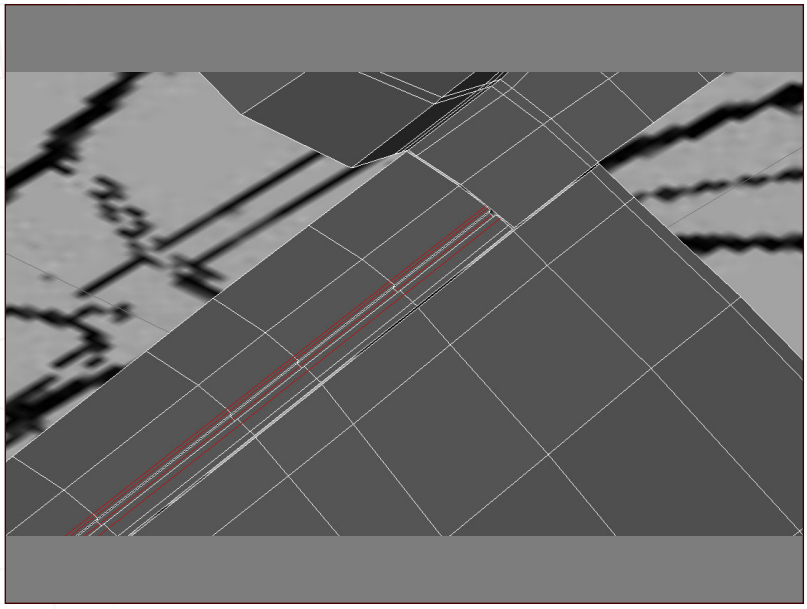


Fig 48

Add the same edge loops as I've done to the hood on the roof and back to get the crease (**Fig48**).

For the back flicker, just detach the faces that make it and add a couple of edge loops in it and around its gap so that the edges stay sharp and make sure it stays as quads (**Fig49** and **Fig50**).

Fig 49

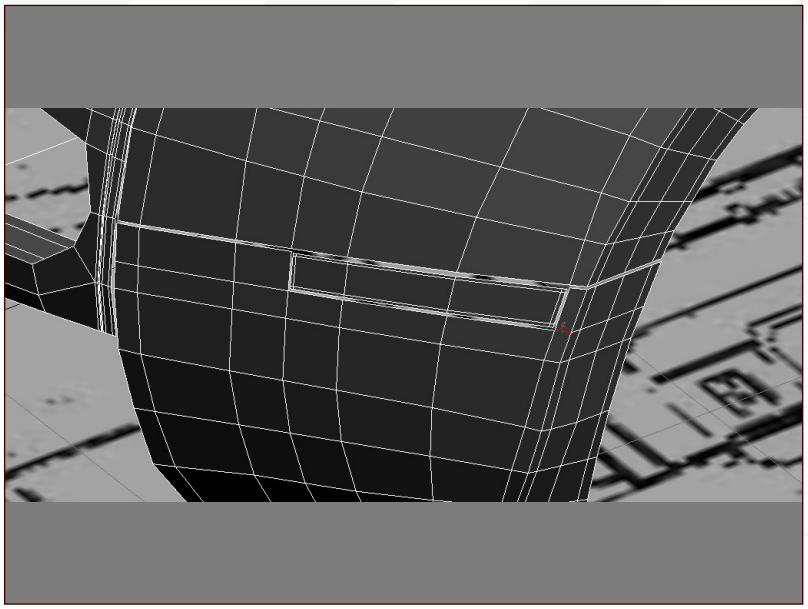
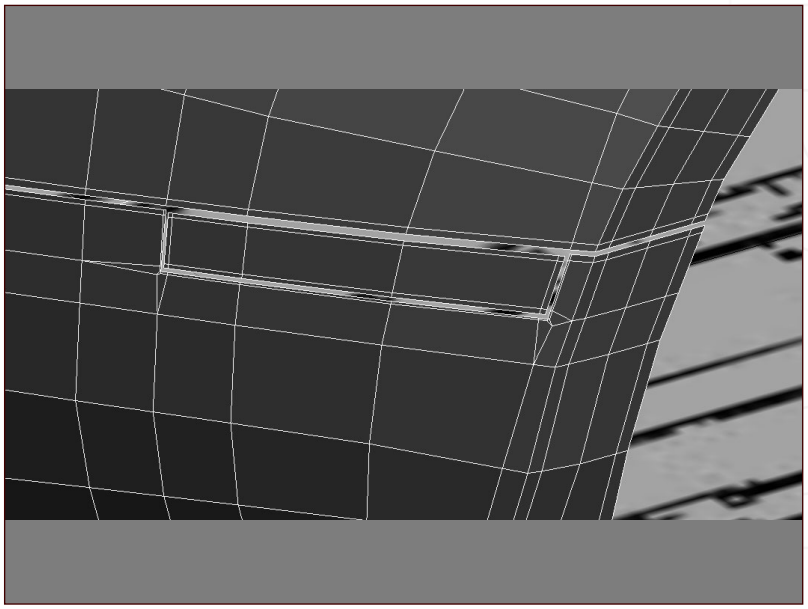
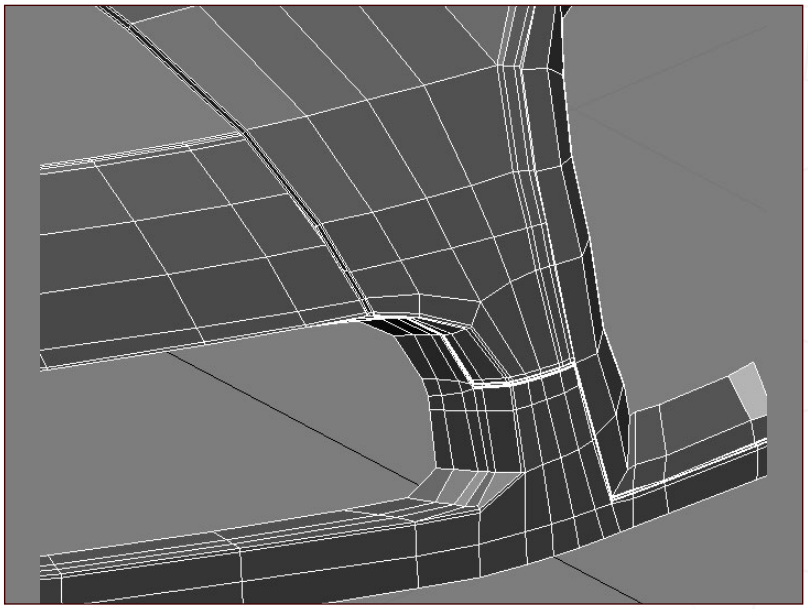


Fig 50



Now you want to add edges and cuts so that you have everything sharp and looking right when you add a meshsmooth modifier. Take any holes you have in the mesh inside by extruding so that you have some thickness to the body, and add any details you think are needed. All the remaining work now is similar to what we have already done - just extra tweaking so that everything looks right (**Fig51**, **Fig52**, **Fig53**, **Fig54**, **Fig55**, **Fig56**, **Fig57**, **Fig58**, **Fig59**, **Fig60** and **Fig61**).

Fig 51



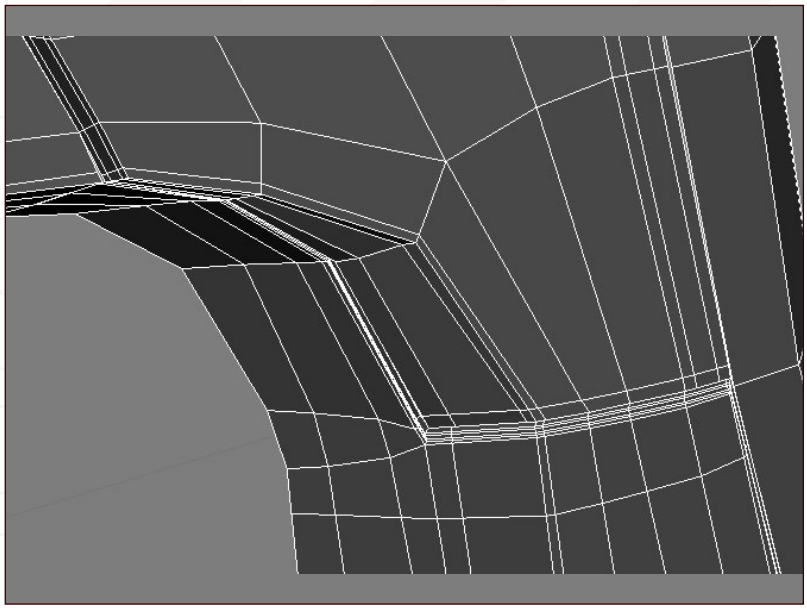


Fig 52

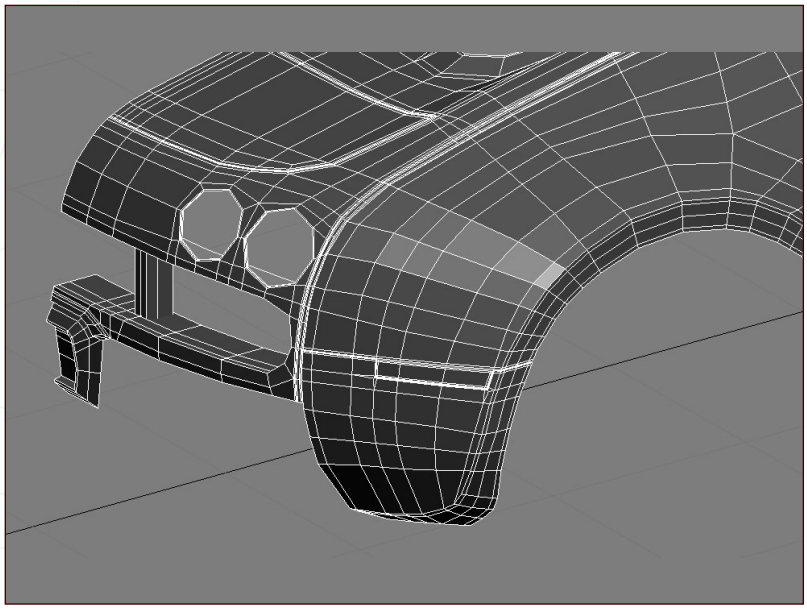


Fig 53

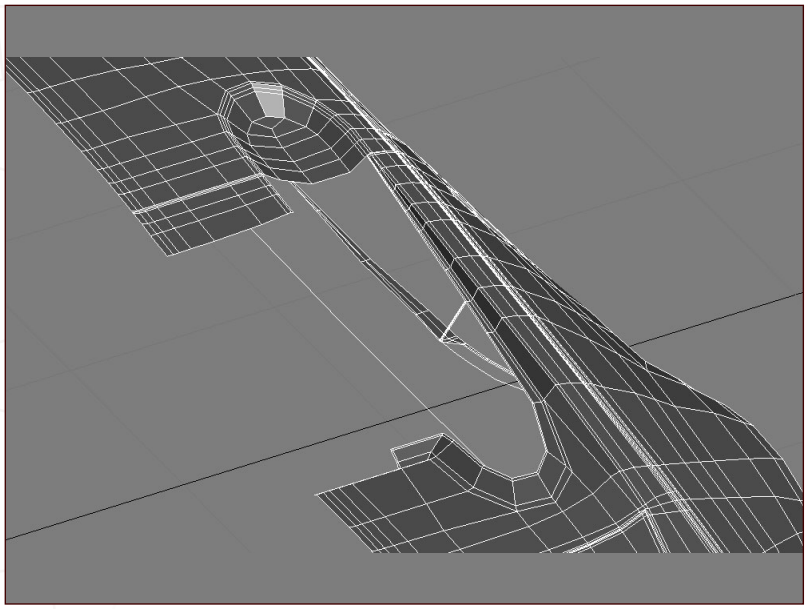


Fig 54

Fig 55

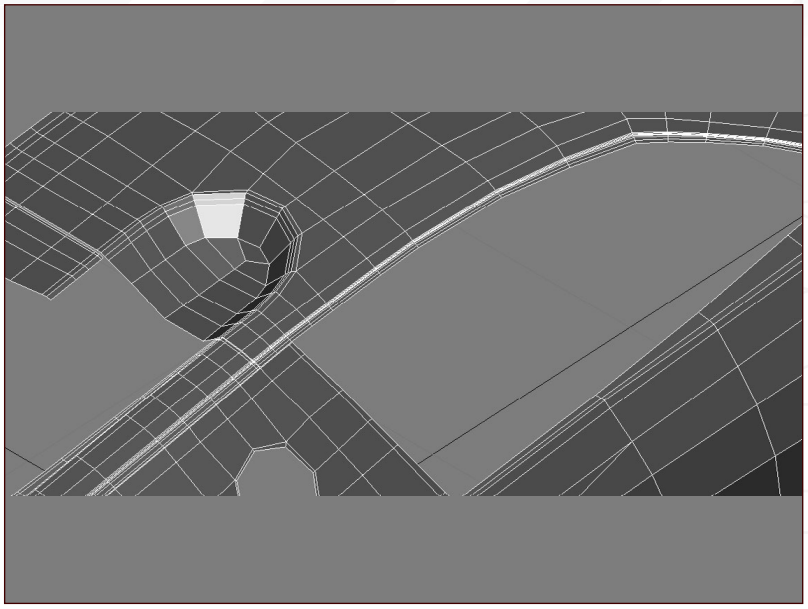


Fig 56

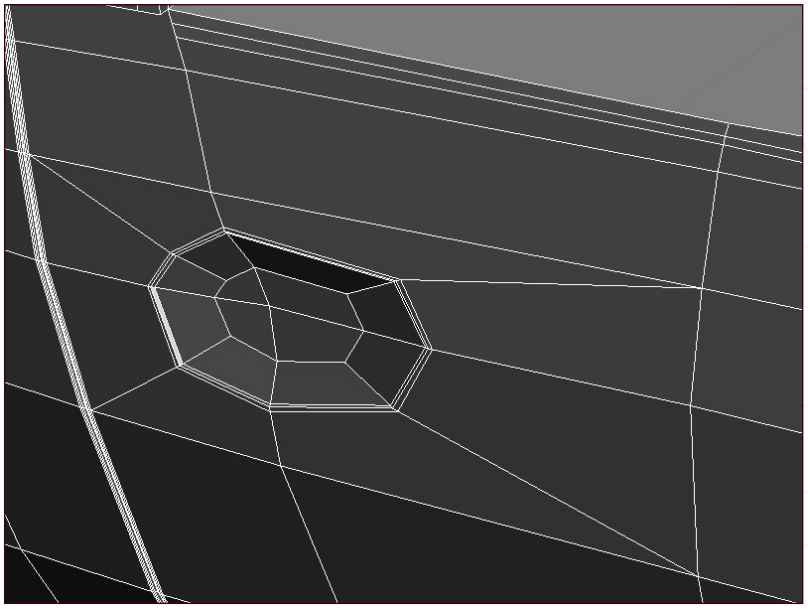
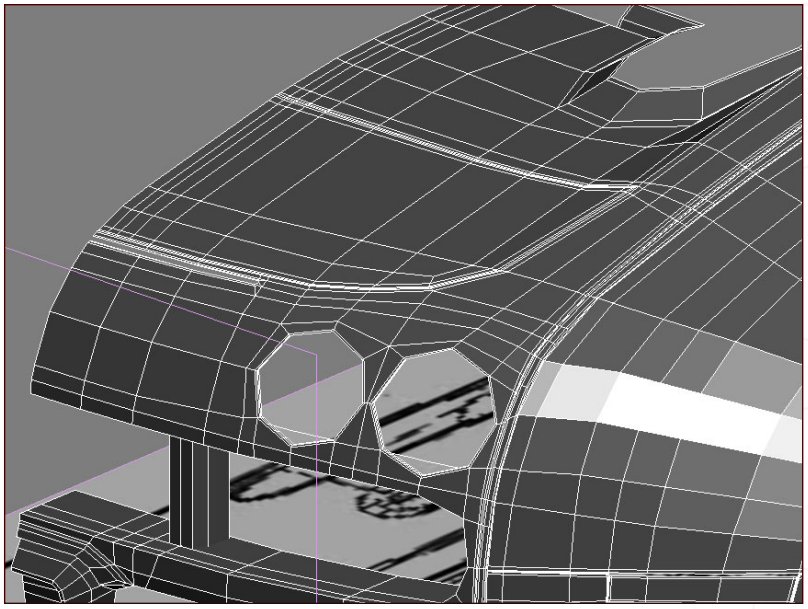


Fig 57



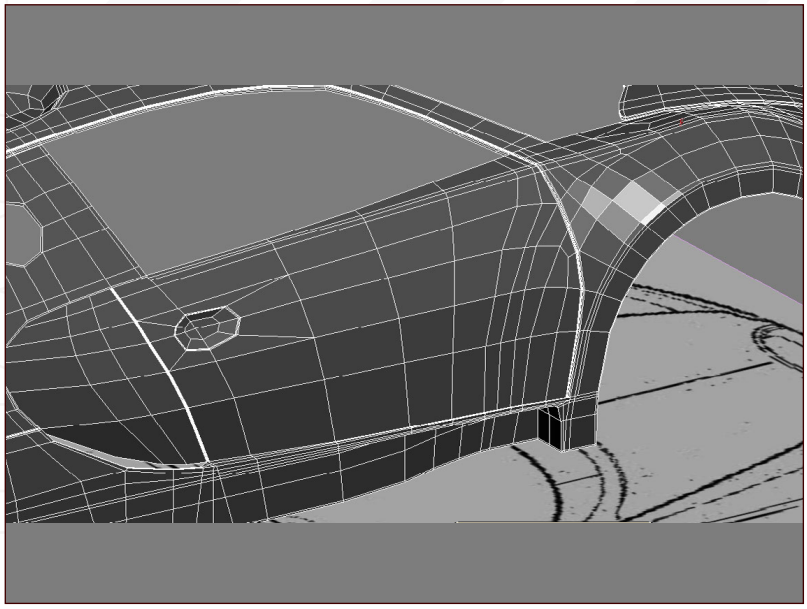


Fig 58

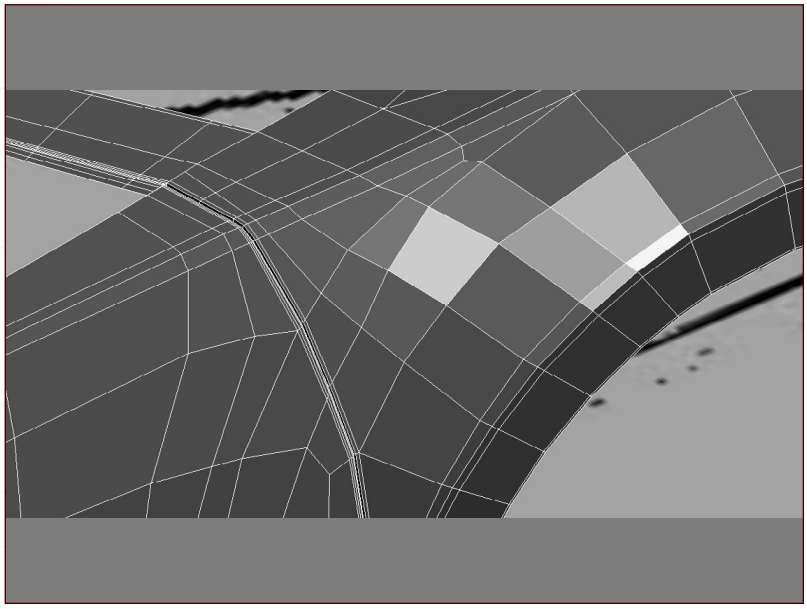


Fig 59

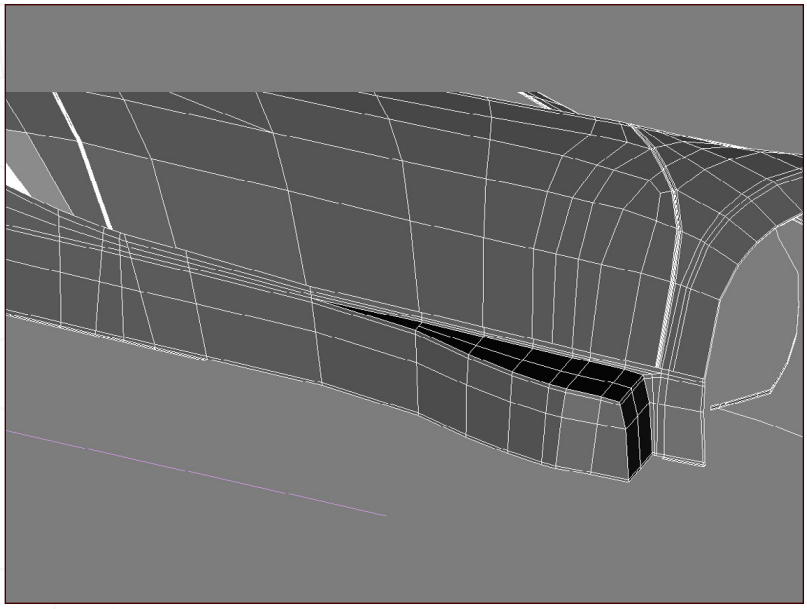
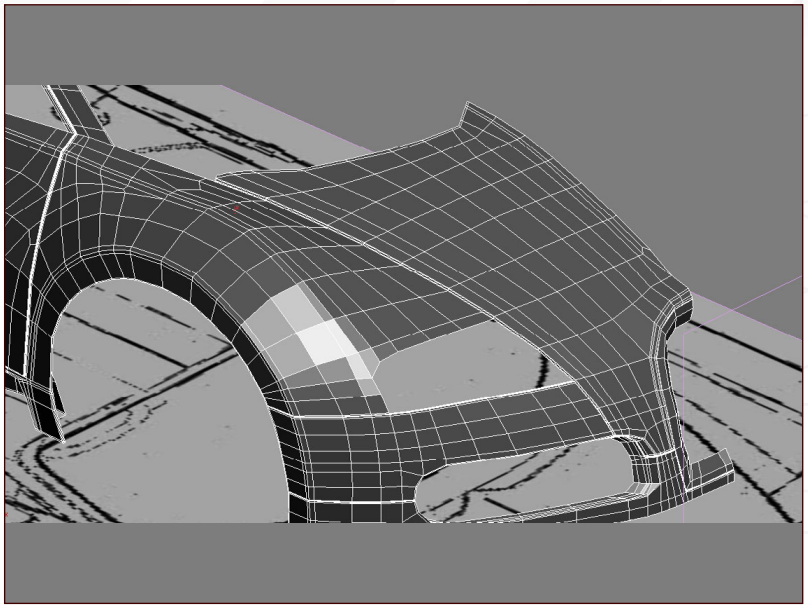


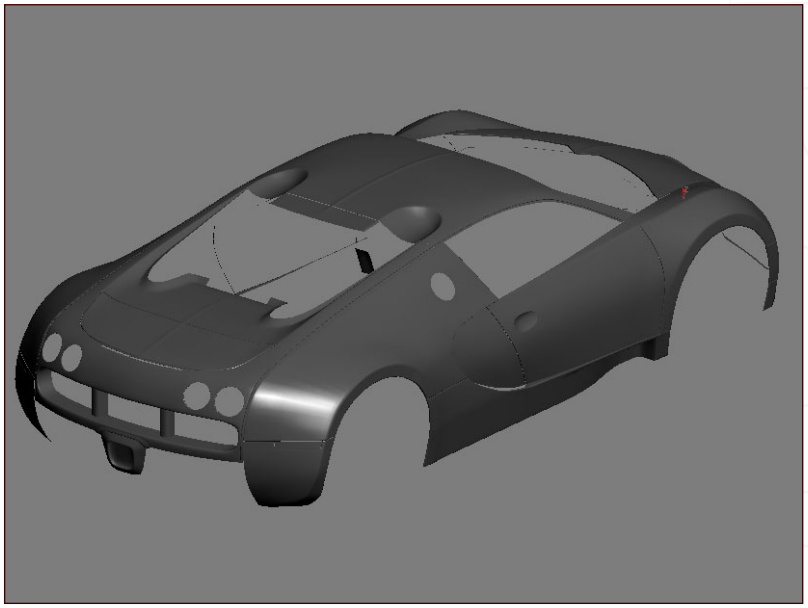
Fig 60

Fig 61



You might have some areas with creases or artifacts. These can all be fixed by either welding some of the vertices or simply moving them to the right position. It's also a good idea to make sure that everything follows the blueprints and reference image correctly.

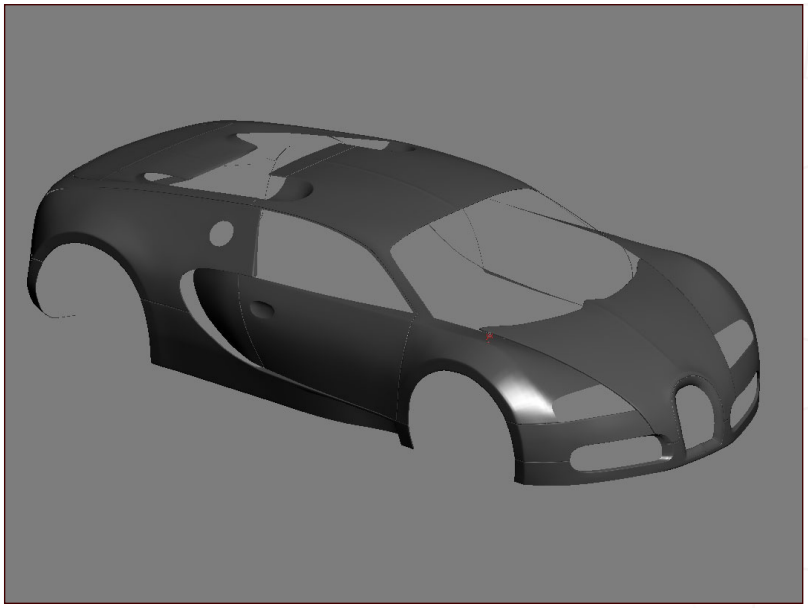
Fig 62



At this stage, you should have a model similar to this. (**Fig62** and **Fig63**). It's important to remember that while it might look quick when I lay the process out, it did take me a signficant amount of time to make the model. Don't be afraid to take your time.

In the next part we will go over doing all the remaining details.

Fig 63



BUGATI VEYRON: PART 2

Tutorial by:
ALI ISMAIL
For more from this artist visit:
http://www.aliismail.com/
Or contact them:
ali@aliismail.com

Bugatti Veyron
car modelling series

The series will cover an in-depth and comprehensive guide to modelling the amazing Bugatti Veyron car, from start to finish, and will focus on the key techniques and stages involved in building the chassis, as well as details such as the windows, lights, vents, petrol caps, engine parts and so on. We will then move on to creating the wheels, including tyres and hubcaps, before going on to building and incorporating an interior, namely the dashboard and seating. The series will proceed with a section on creating and applying materials for the numerous parts of the car, such as the paint work, chrome, rubber and glass, before concluding with a tutorial devoted to setting the scene for a finished render. The final part will cover the importance of a good lighting rig and light parameters, as well as the importance of a camera and the integral part that the rendering settings play in showcasing the model for a portfolio.

This series aims to show a comprehensive guide to creating a finished car for people new to this type of exercise, but is not suitable for beginners who are not familiar with using 3D software. The tutorials do not detail every single step of adding individual edge loops and vertices, but does endeavour to outline each important stage and explain the crucial techniques necessary to following the exercise.

The schedule is as follows:

Issue 029 January 2008
MODELLING THE CHASSIS - BASICS

Issue 030 February 2008
MODELLING THE CHASSIS - DETAILS

Issue 031 March 2008
LIGHTS, RADIATOR GRILL & VENTS

Issue 032 April 2008
WHEELS, TYRES & RIMS

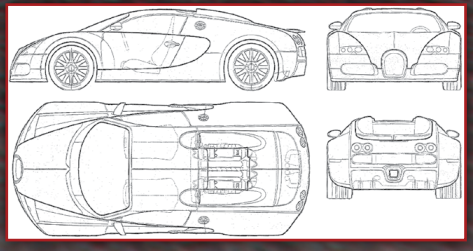
Issue 033 May 2008
INTERIOR

Issue 034 June 2008
THE MATERIALS & FINISHES

Issue 035 July 2008
LIGHTING SET UP & RENDER

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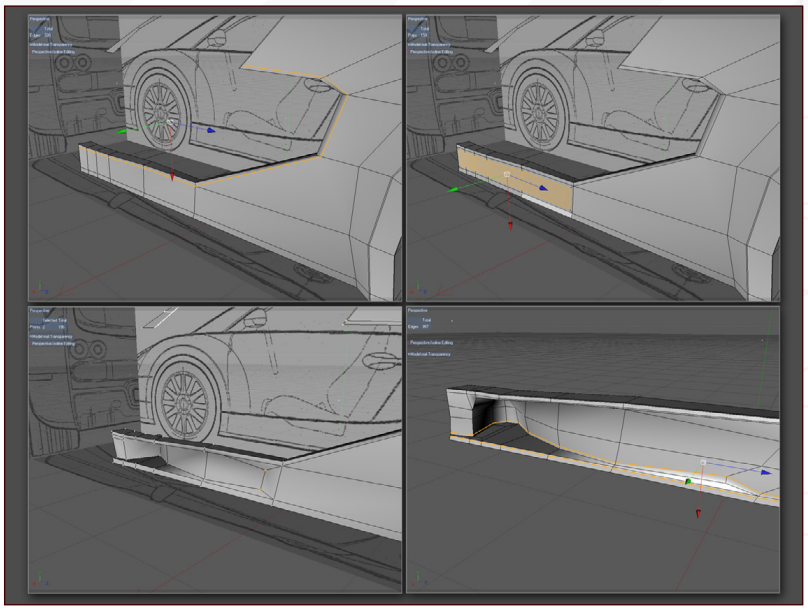
www.the-blueprints.com

MODELLING THE CHASSIS PART 2 - DETAILS

In this section of the tutorial I will be covering how to model the details, such as the lights, and also how to cut lines for each individual panel of the Veyron body.

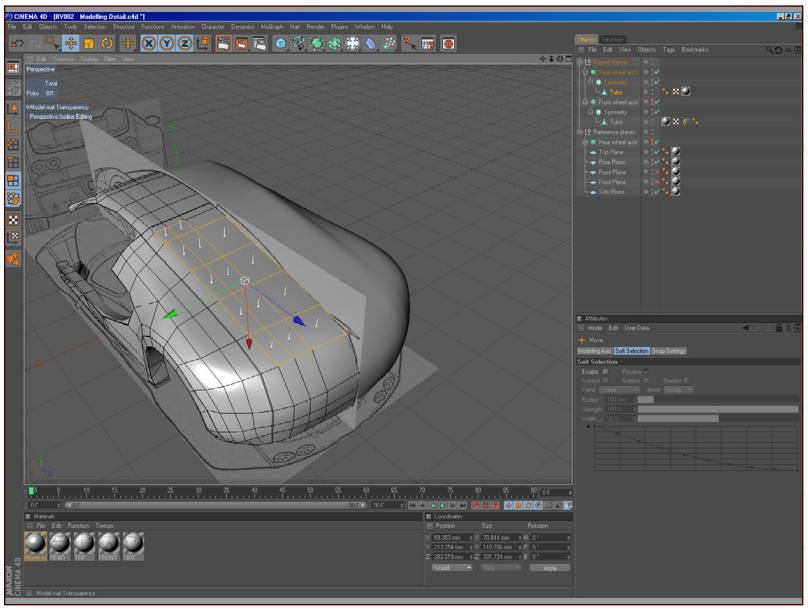
I'm going to begin by detailing the vent found at the base of the doors. First, loop cut the polygons near the edge then select the polygons and extrude inner (this helps soften the flow and gives the best results without getting any pinching). Next extrude the polygons in and re-position the newly created points to match the plan views. Constantly check the reference photographs to make sure the vent looks correct. I add additional cuts to help refine the edges (**Fig01**). [**NB**: All four panel figures read from top left to right, then bottom left to right]

Fig 01



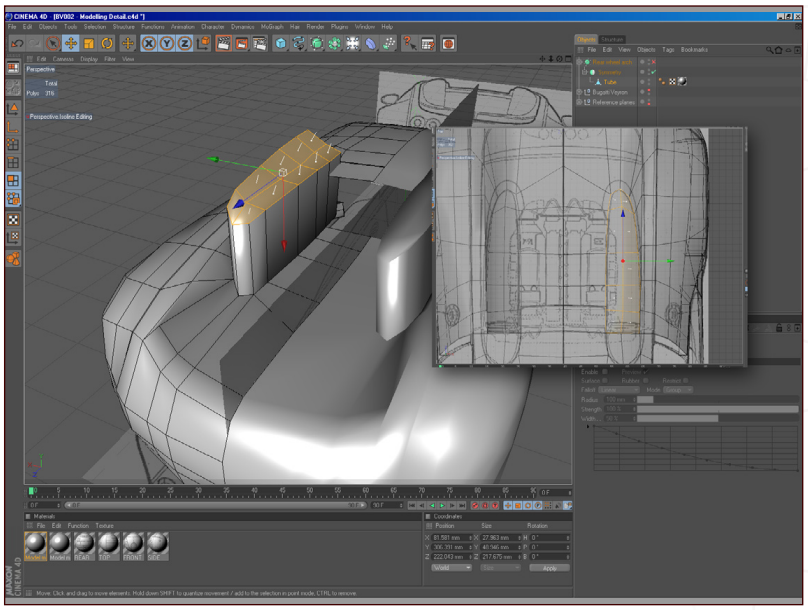
Select the polygons shown in (**Fig02**) and extrude them down. You will need to flatten this group of polygons and also make sure you delete the faces on the zero X axis because they will disrupt the symmetry of the object. In addition, you will need to zero the points that will need to be on the X axis.

Fig 02



Now move the points in the top view to match the outline of the engine vents and extrude the upwards (**Fig03**).

Fig 03



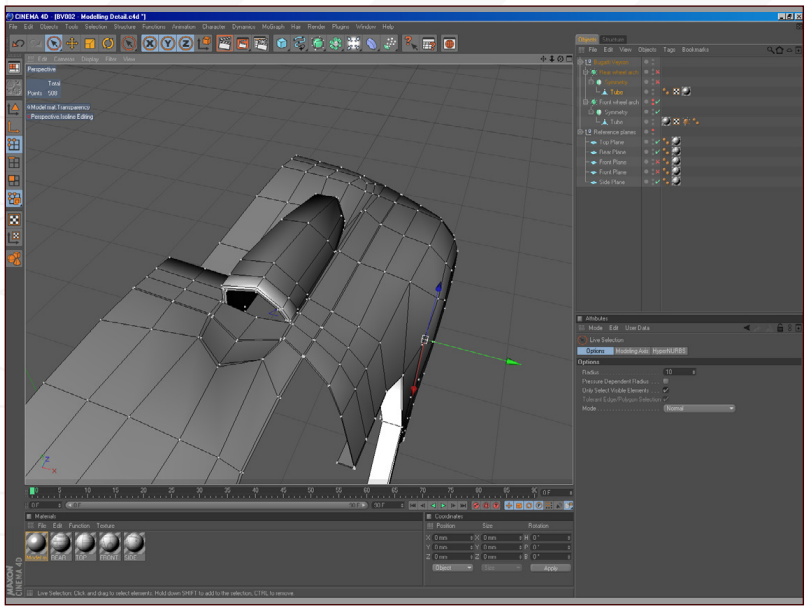


Fig 04

I add more loop cuts down the centre of the length of the car and across the roof. I shape the engine vent in each viewport and extrude inner the polygons at the opening, then extrude them in. For the indents on the roof in front of the vent I simply shape the points then bevel the edge to define the indent (**Fig04**).

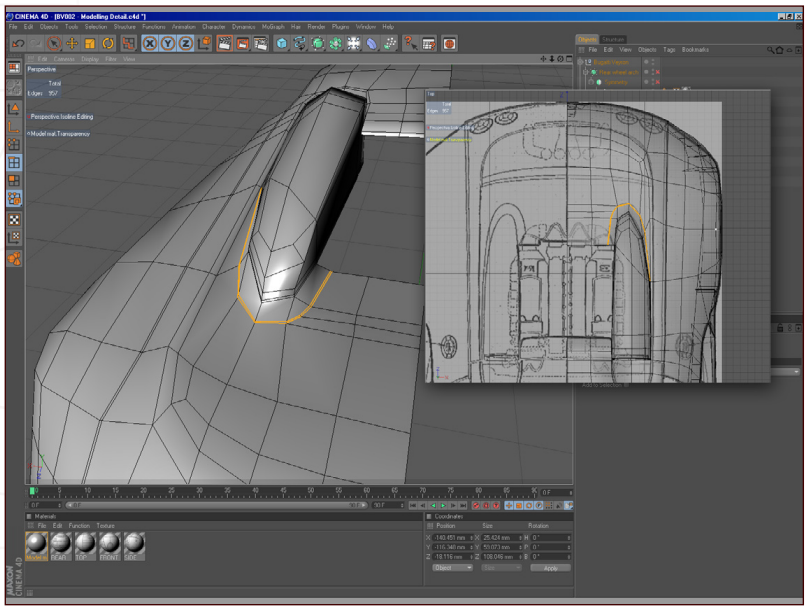


Fig 05

More definition is needed at the base of the engine vent, so I add two loop cuts as shown and move the points in the top and rear view (**Fig05**).

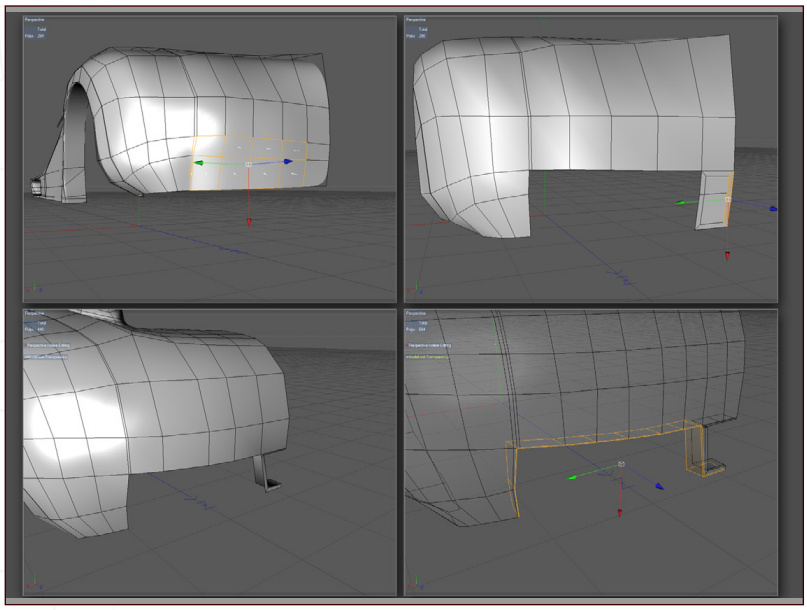
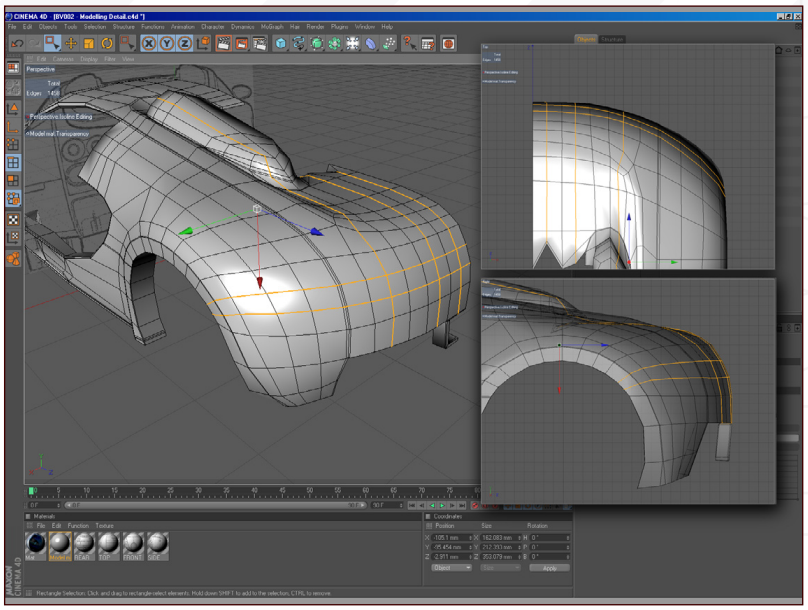


Fig 06

Time to define the rear floor section of the car. Start by deleting the polygons as shown. Then I extrude inner the remaining two polygons and delete the two inner newly created polygons. Centre the points on the X axis and extrude the middle polygons in towards the body. Now select the outer edge and edge extrude slightly and drag the new edge inside the body (**Fig06**).

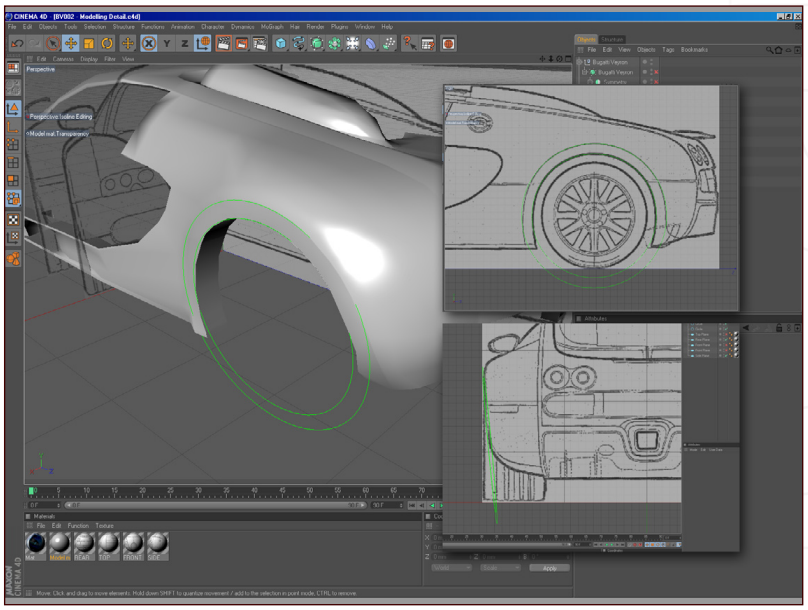
Loop cut and move the points in each view remembering to pay attention to how the polygons flow from the rear wheel arch around to the boot/trunk (**Fig07**).

Fig 07



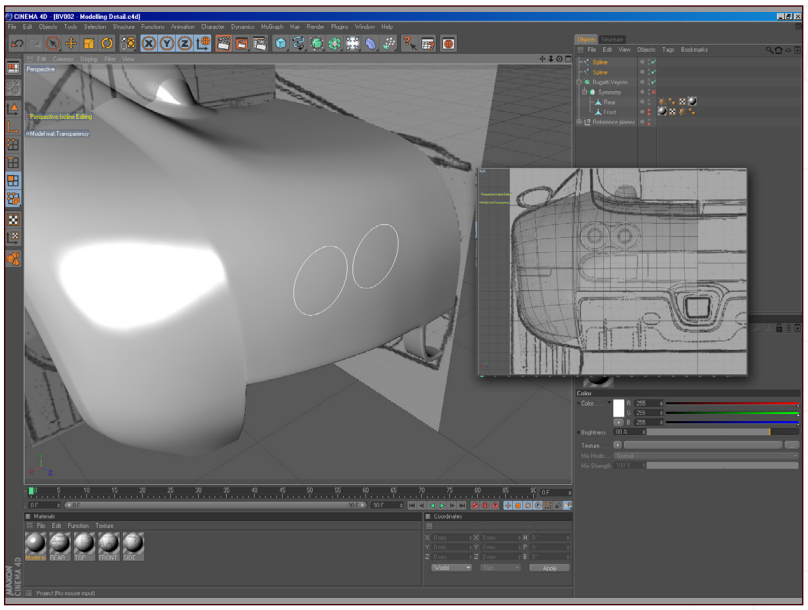
Personally, I sometimes find it difficult to align the points around the areas such as the wheel arches as there is typically a build up of points. I place two spline circles in the side view and align it to the wheel arch using each viewport. Now I can move the points in the X axis and align them to each circle (**Fig08**).

Fig 08



The rear circular lights can be made by simply adding two cylinders and Boolean them from the main body, but I prefer to move points and create it from one piece. The latter method will give better results as a Boolean creates a very sharp and unrealistic cut. First, I create two circles in the rear view and align them to both lights. Then I pull them clear of the car body in the Z axis (**Fig09**).

Fig 09



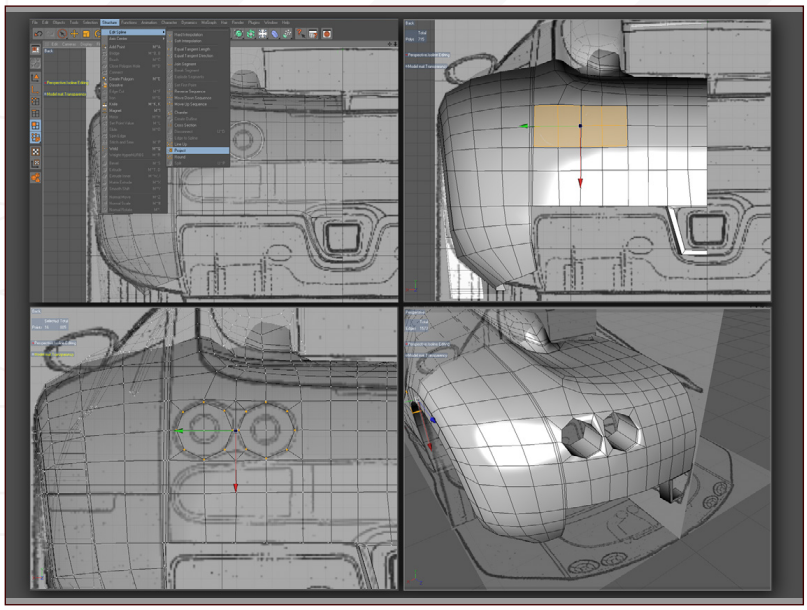


Fig 10

Now, select and make each circle spline editable. Go to the rear view and go Structure>Edit Spline>Project. Leave the settings as they are and click apply. Now both circles should be projected onto the car body. Now select the polygons and extrude inner by 1mm, use the move tool plus snap to spline to move the points around the circles. Extrude the polygons in and delete them. Now add a loop cut to the inside to define the edge (**Fig10**).

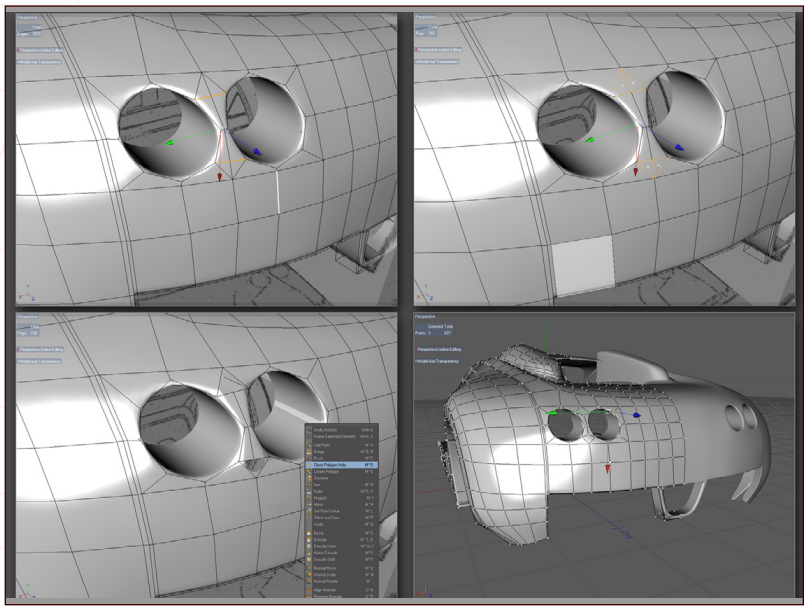


Fig 11

We need to add more detail to some of the polygons that are being stretched in between the lights. First cut across the polygons from point to point as shown. Now delete the triangle polygons and the close the polygon hole left (**Fig11**).

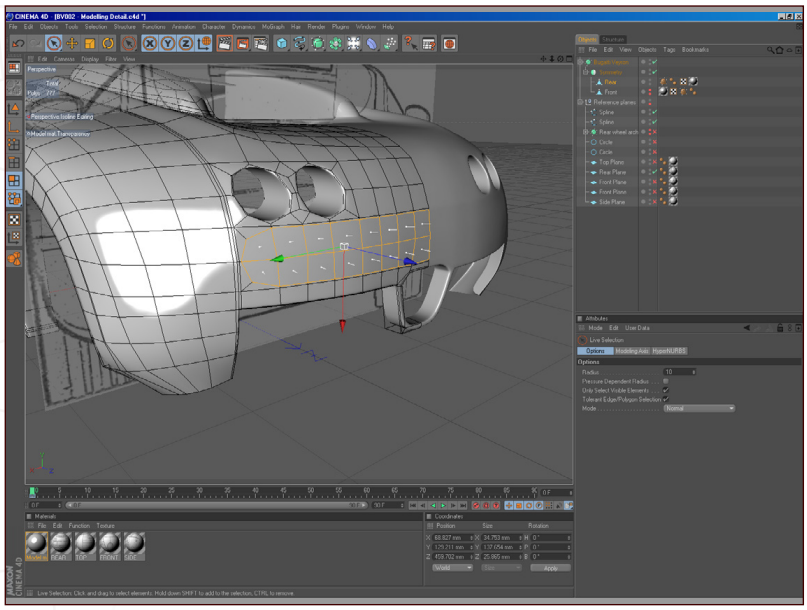
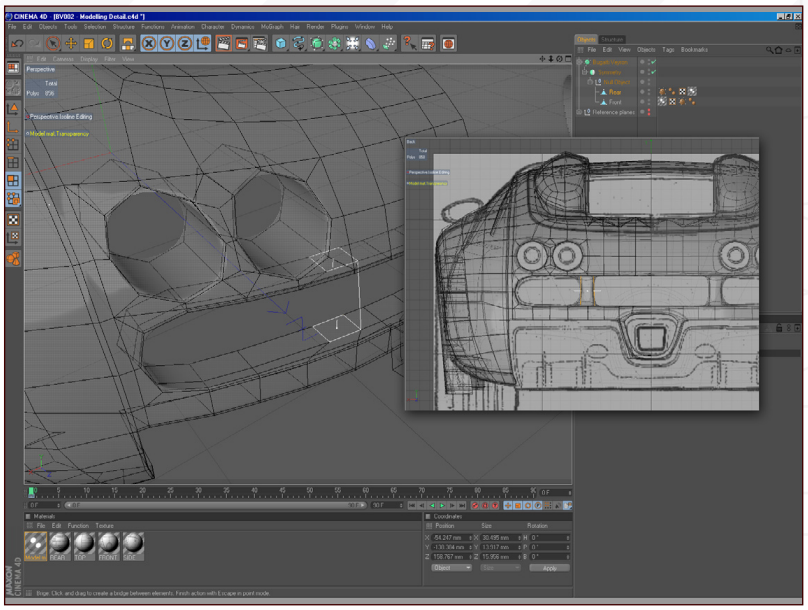


Fig 12

Now for the rear vent. Select the polygons as shown and extrude inner by 1mm. Extrude these in and delete them making sure that you zero the points on the X axis. Use the same loop cut inside method to define the edge (**Fig12**).

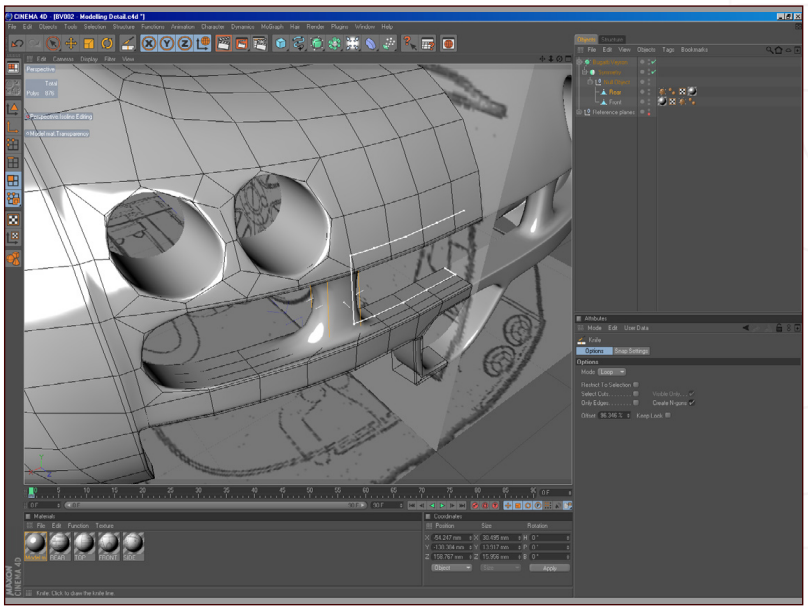
Add a further loop cut inside where the supports and the number plate area will be. Select the polygons and bridge them, making sure delete old polygons is selected (**Fig13**).

Fig 13



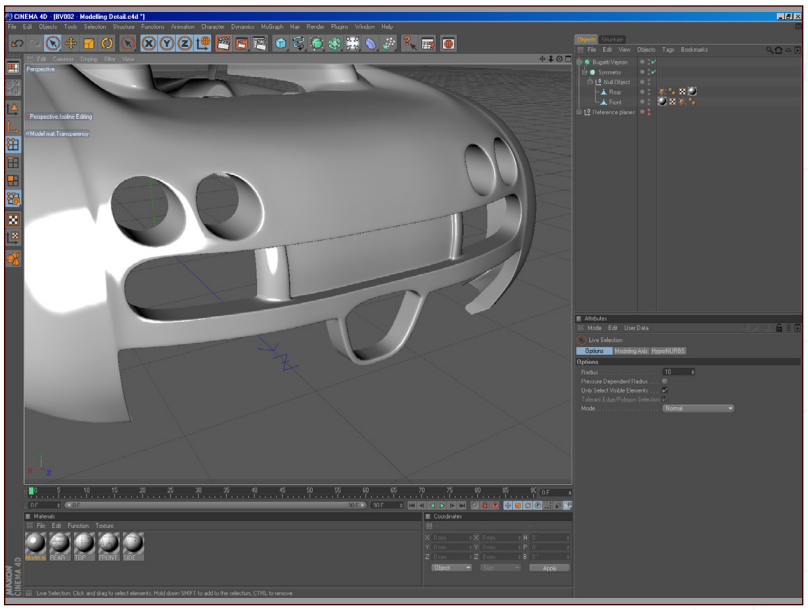
Loop cut the inside of this new section and bridge the inside (**Fig14**).

Fig 14



Move the points forward and add loop knife cuts to the top and bottom of to define the shape (**Fig15**).

Fig 15



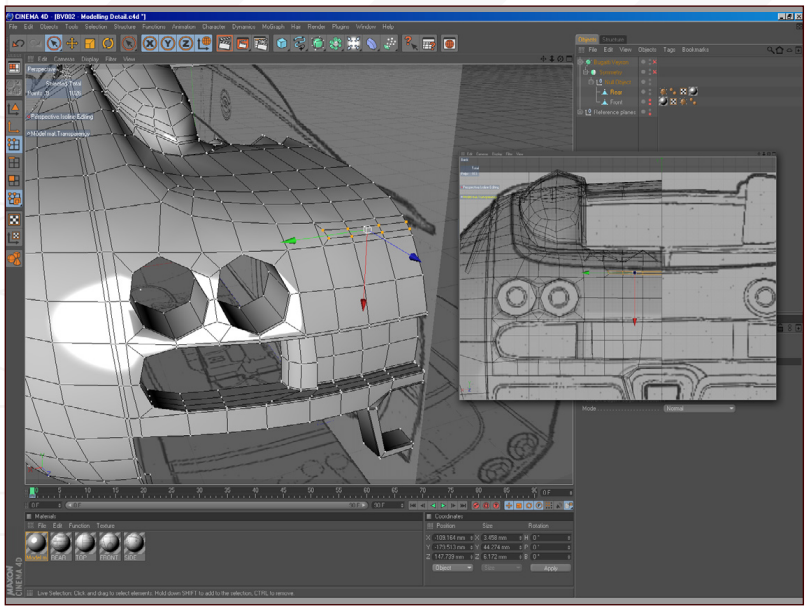


Fig 16

Inner extrude, delete and move the points to create the shape shown (**Fig16**).

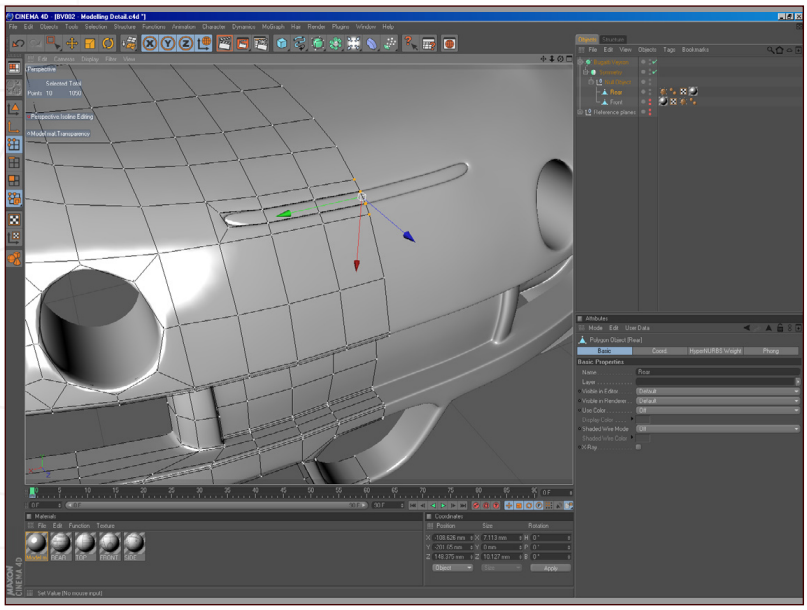


Fig 17

Select the newly created polygons and extrude in slightly then extrude them in a few millimetres more. Now extrude the same polygons out so that they line up almost back to the original position. Delete all the inner faces on the X axis and zero all the points along the centre line to form the smooth symmetry object as shown (**Fig17**).

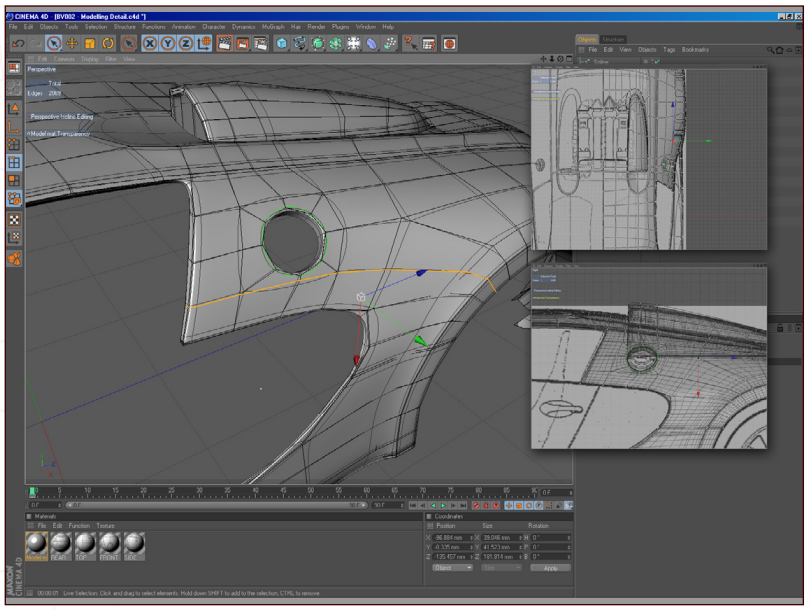
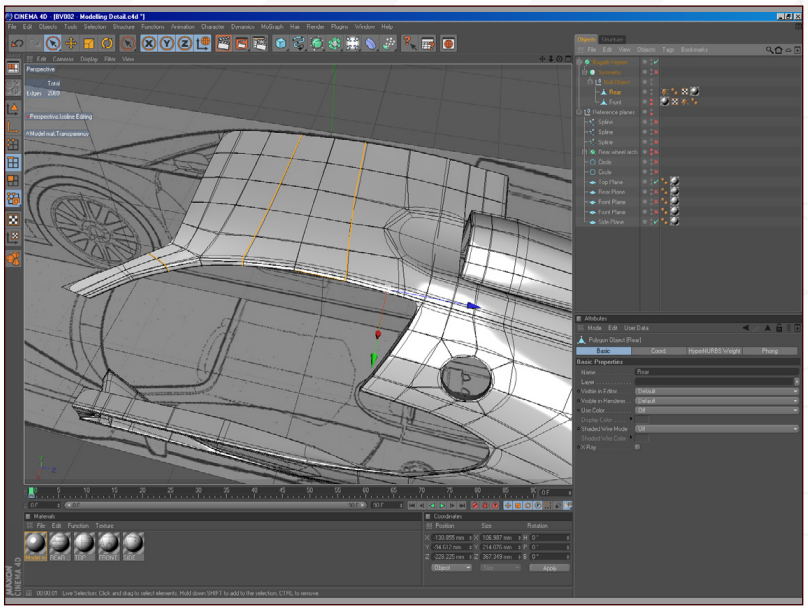


Fig 18

Now, I didn't realise that the car actually had two fuel tanks and therefore a fuel cap on each side. Usually things like fuel caps are done after the symmetry object is made into a single mesh and asymmetrical details are added afterwards, but being symmetrical means we can add it now and save time later. The hole was created much the same as the technique for the rear lights with some extra loop cuts to define the hole. Notice that the fuel cap doesn't align to the plans, this is a mistake on part of the plans, as I said before you can't completely trust the plans found online! (**Fig18**)

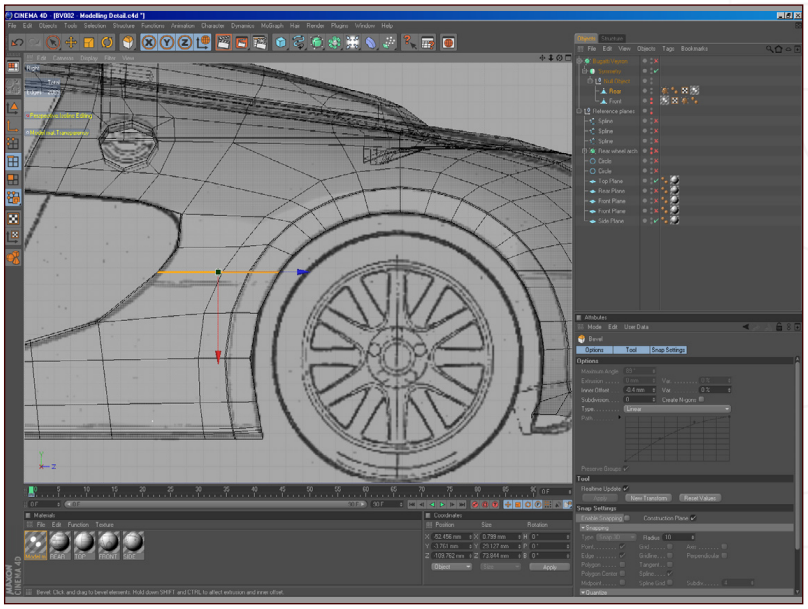
I move up to the roof to add loop cuts and move the points to capture the slight curve (**Fig19**).

Fig 19



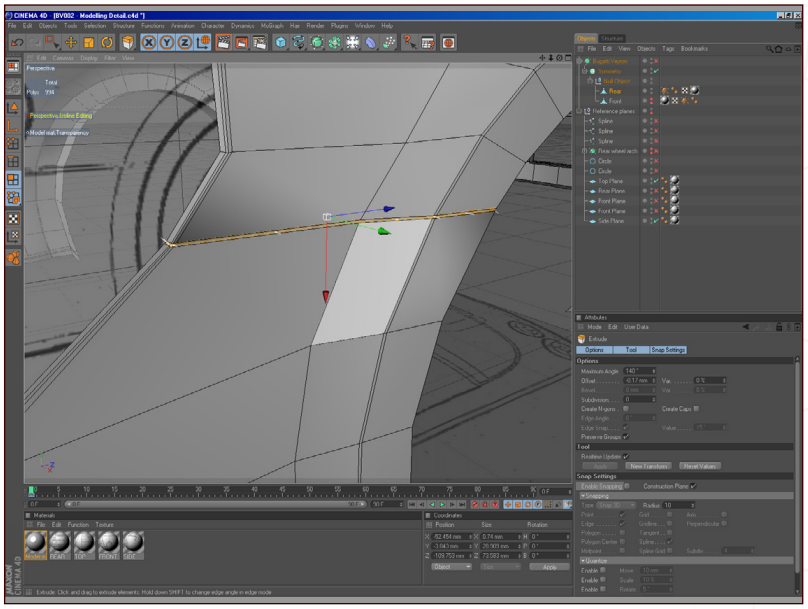
Time to define the panels and add in the cut lines that run between them. I begin by selecting the loop of edges around the wheel arch and bevel them 0.3mm (this amount will be used for all cut lines). Notice that these don't line up with the plans. From the reference photographs it looks like this line runs horizontally with the cut line on the opposite side so I've moved the edges to match. This is not a major issue and just my own preference, you can follow the plans if you wish (**Fig20**).

Fig 20



Select the newly created loop of polygons and extrude them in slightly and then again . Delete the inside polygons created at each end of the loop and move the points to make sure none of them intersect each other (**Fig21**).

Fig 21



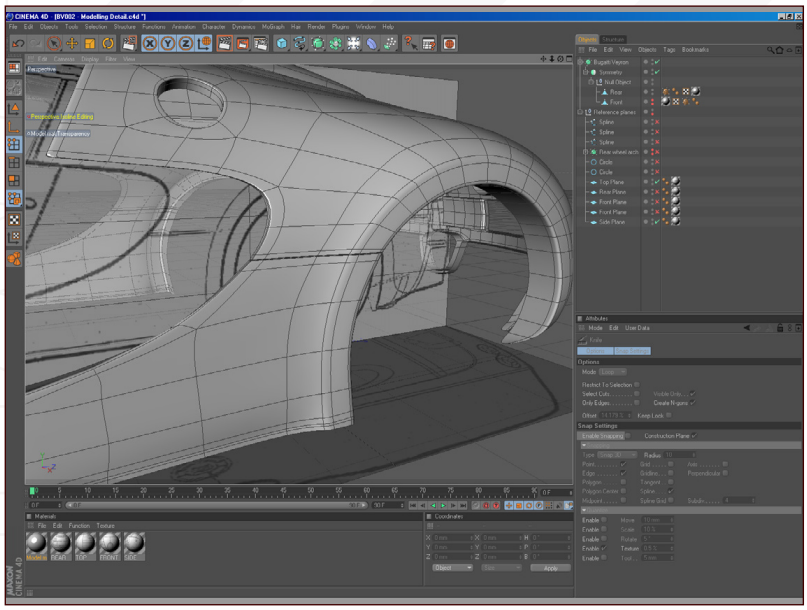


Fig 22

You should end up with a clean cut line across the panel. I prefer this method instead of detaching each panel separately, as I have seen numerous examples of cars that have separate panels and you can see daylight through the gaps! (**Fig22**)

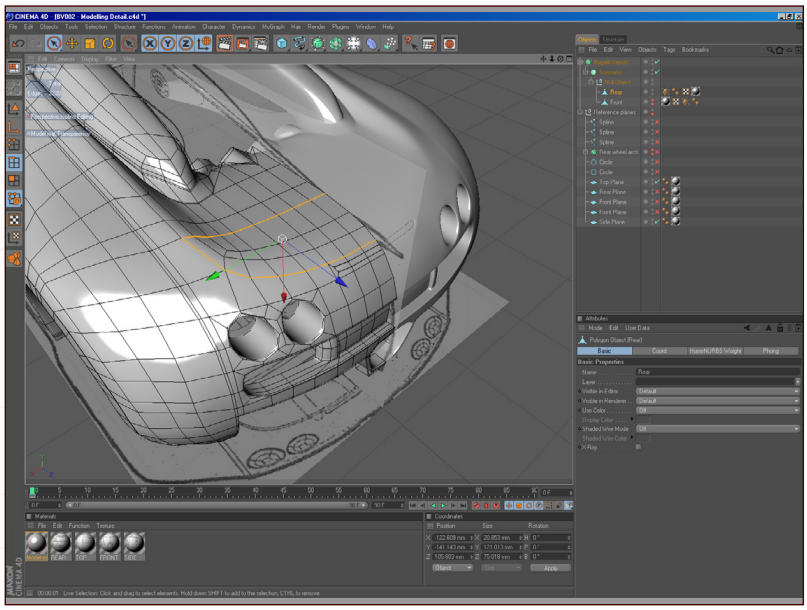


Fig 23

Now for the rear wing, I've chosen not to make it adjustable and will be leaving it in its lowered state. If you would like to detail this section then you could easily detach the polygons to a separate object. Create the recess below then thicken the wing by extruding all of the polygons with caps turned on. Right, select the edges as shown and bevel them by 0.3mm (**Fig23**).

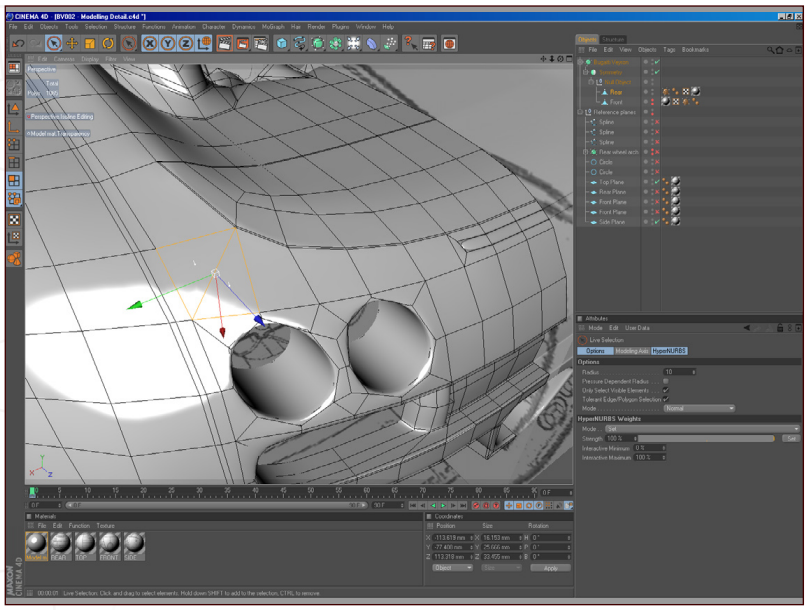
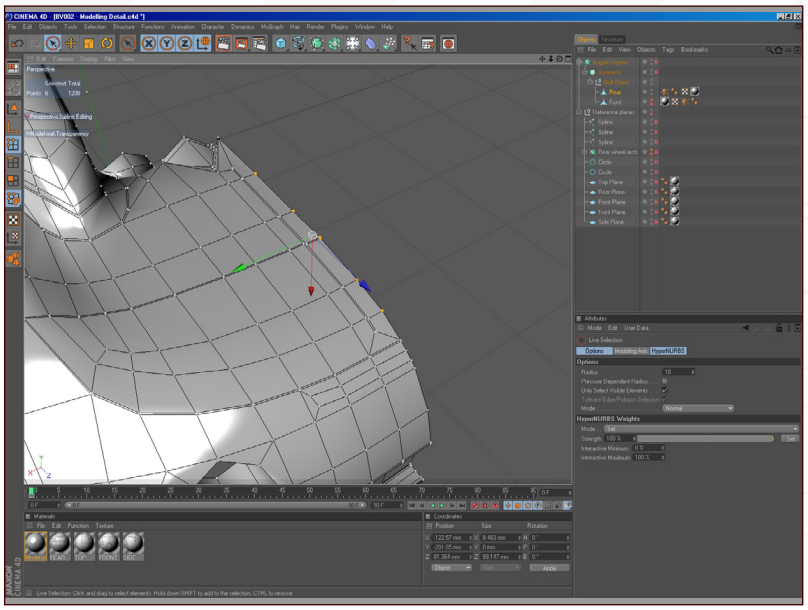


Fig 24

You will now need to check around the edges to see if any additional points were created making triangular polygons, weld any together. Any triangle polygons must be deleted and polygon hole filled (**Fig24**).

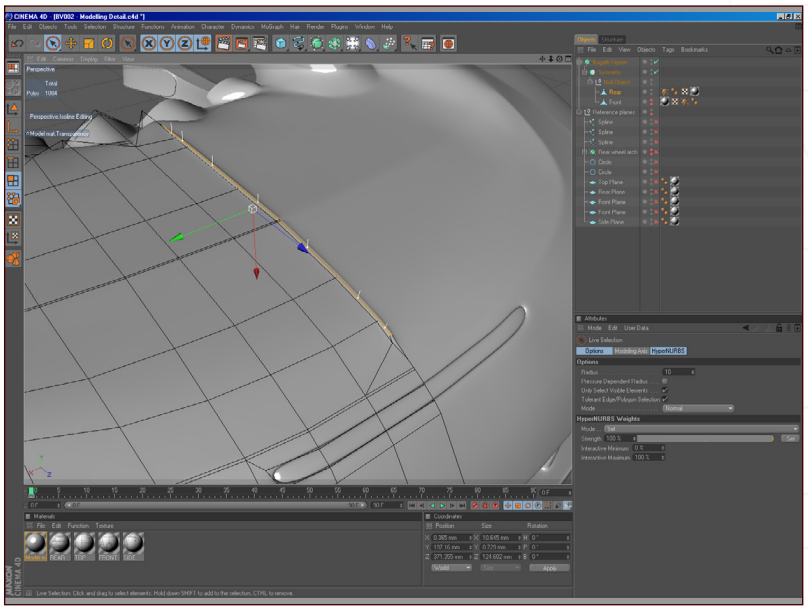
Now, before we extrude the polygons down to form the wing outline, we need to create the thin aerofoil seam that runs down the rear body and wing. Polygon extrude inner, delete inner newly created polygons and zero the points on the X axis (**Fig25**).

Fig 25



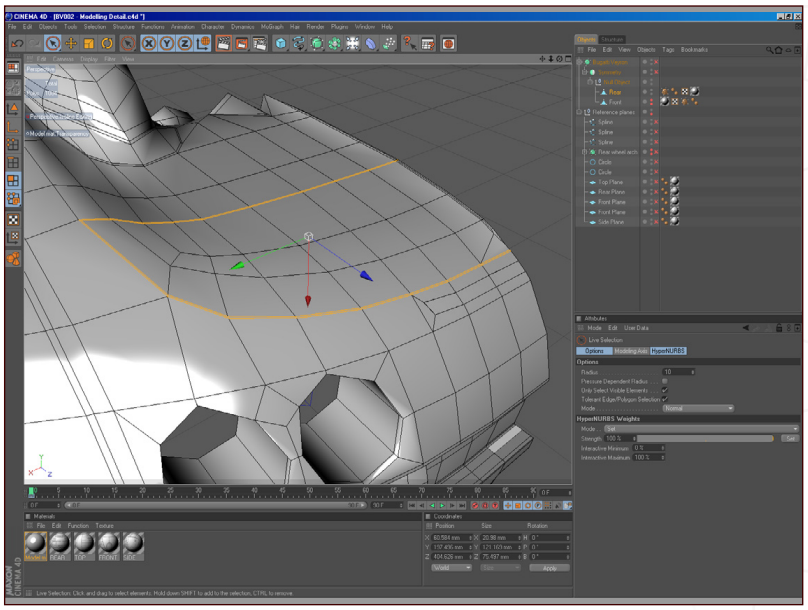
Move all the points to form the thin shape then extrude the polygons out making sure you leave the polygon that the wing outline shares (**Fig26**).

Fig 26



Now we can extrude in twice, the polygons for the wing outline making sure to delete the inside faces and zeroing the points (**Fig27**).

Fig 27



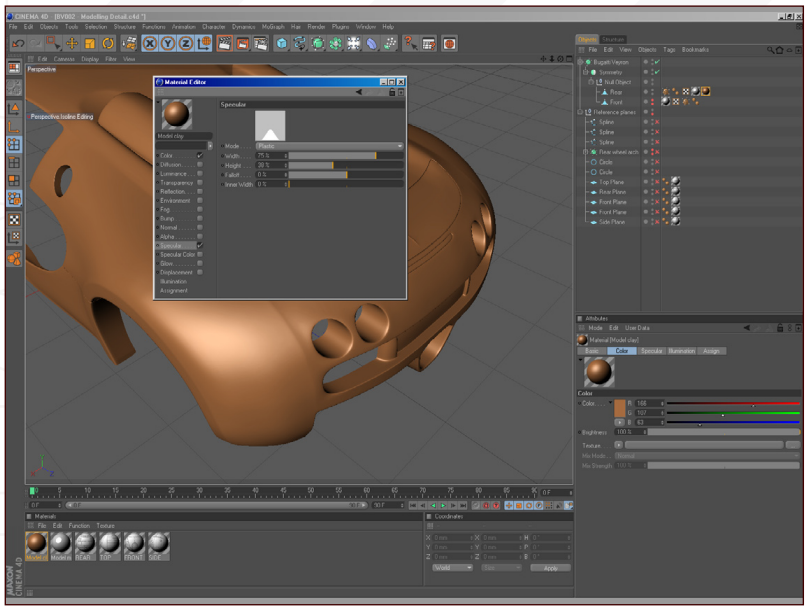


Fig 28

I like to add an additional clay like material for this stage to check the subtle shapes and contours of the body. The colour is irrelevant, so feel free to use any colours (**Fig28**).

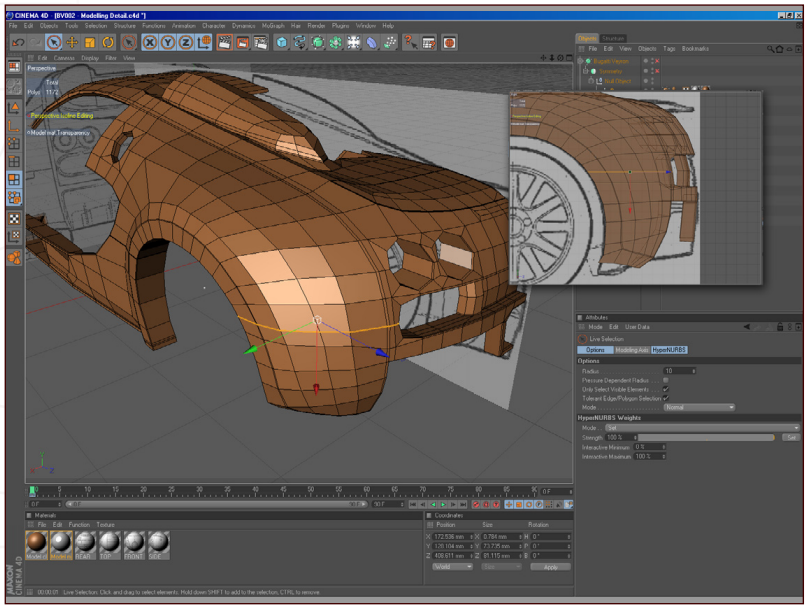


Fig 29

I now start to detail the rear cut line on the rear arch and small light. This is a tricky section and took a bit of time to solve. Select the edges as shown and bevel them. Move the points below into position for the small light making sure you do not disrupt the overall curve (**Fig29**).

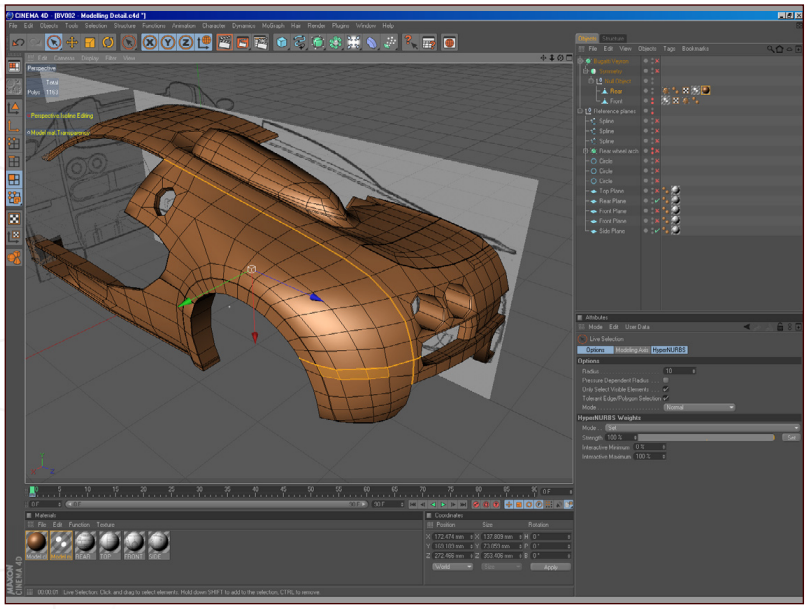
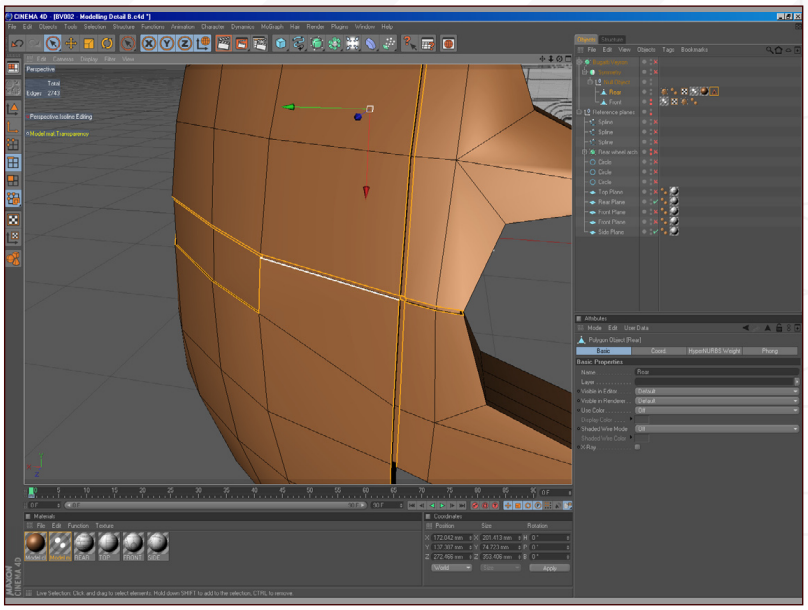


Fig 30

Select all of the polygons as shown and extrude them in once (**Fig30**).

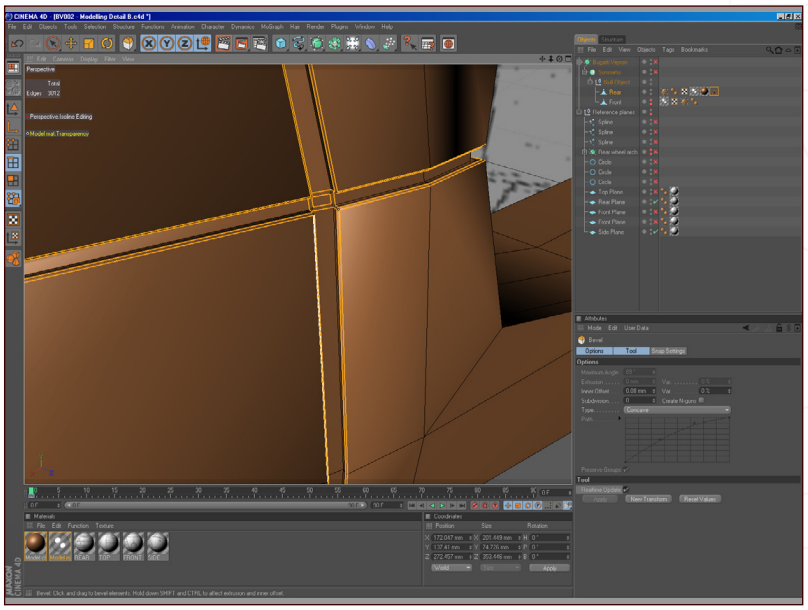
Now this part is hard to explain as there is quite a lot of intricate selections. Select all of the outer edges and the top most corners of the small light (**Fig31**).

Fig 31



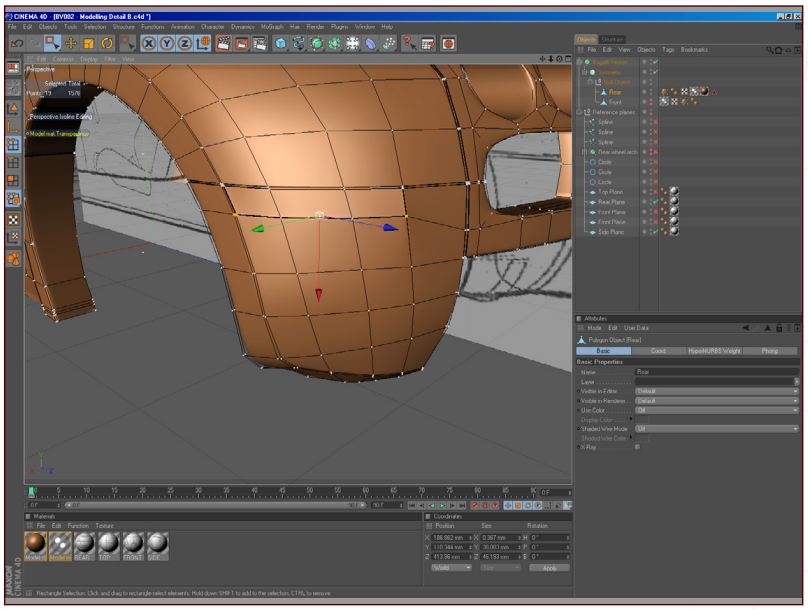
Now bevel these slightly and you should have something like this (**Fig32**).

Fig 32



Now you'll need to check all of the edges to make sure no additional cuts and tri polygons were made. Weld any points together and delete and rebuild any polygons (**Fig33**).

Fig 33



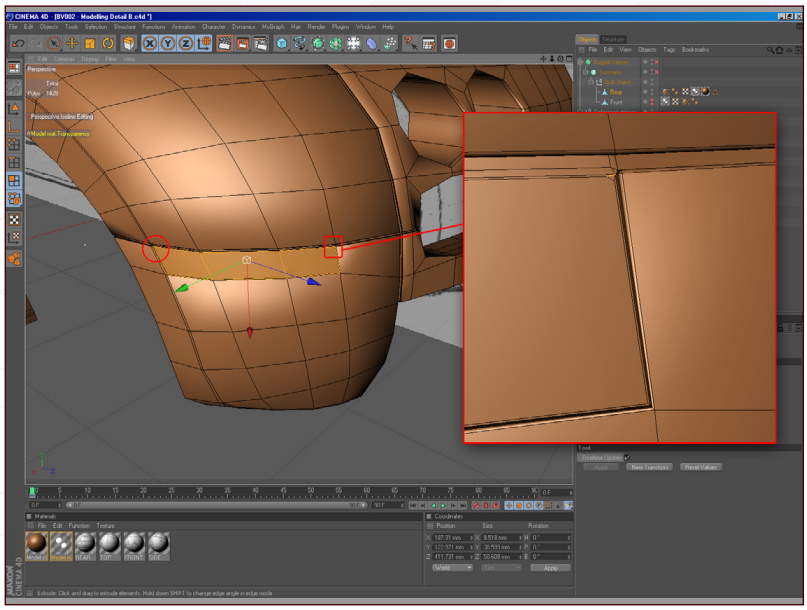


Fig 34

Now line knife cut the polygons shown in **Fig34**. This will help define the light and not round it off when the hypernurbs is switched on.

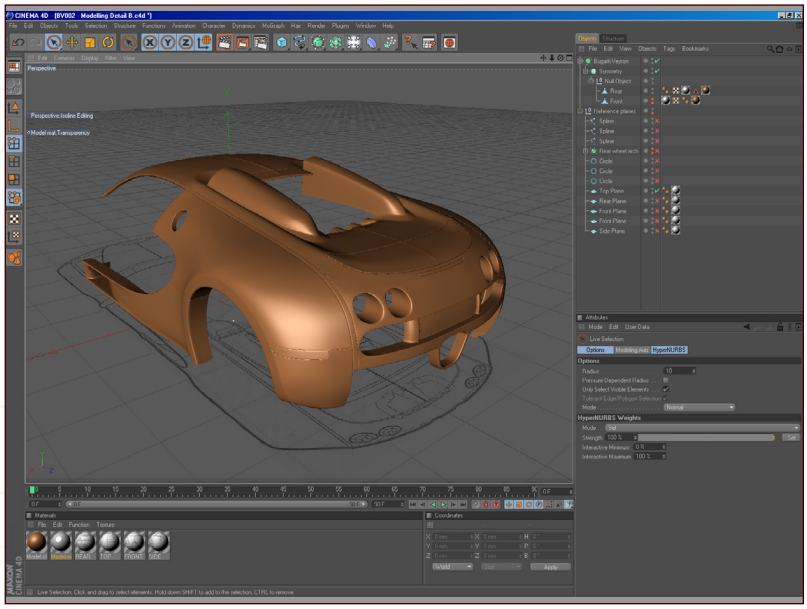


Fig 35

Extrude the polygons out almost to their original position and you should end up with something like this (**Fig35**).

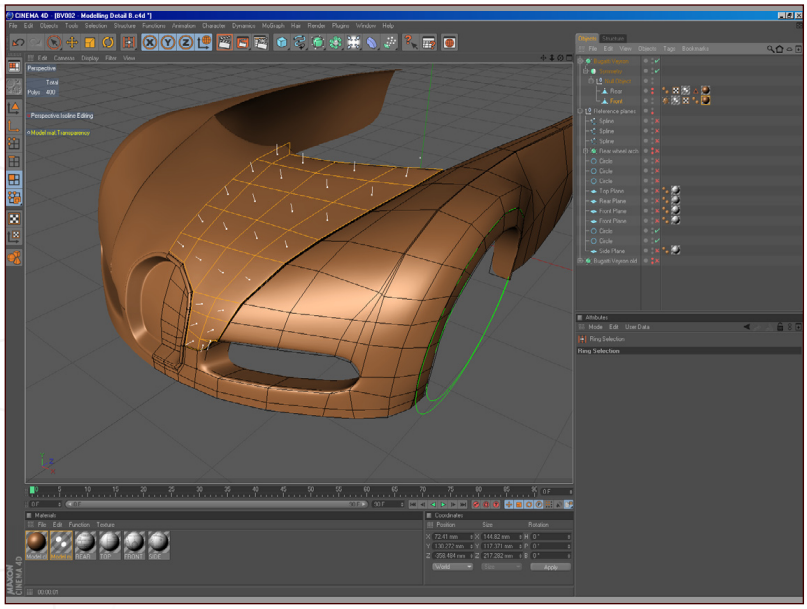
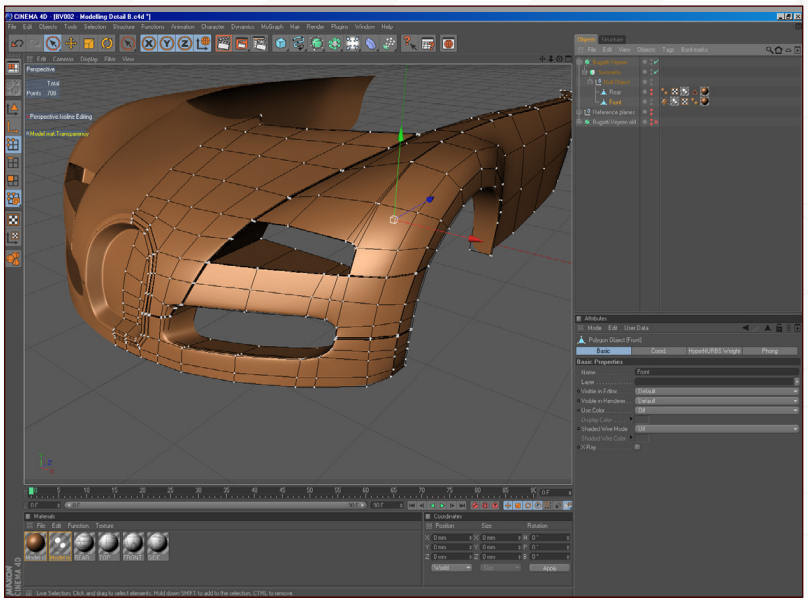


Fig 36

Now for a quick overview on how I detailed the front section. I started by adding a few more loop knife cuts and moving points. Adding two circles for the wheel arch as per the rear. Then I selected the polygons on the bonnet and extruded them out (**Fig36**).

For the lights I inner extruded the polygons then extruded them into the body and deleted them. As usual there is quite a lot of points moving and I'm unable to show you every slight adjustment (**Fig37**).

Fig 37



Shows the extra details I added for the panel cut lines and aerofoil seems, these were all covered earlier in this tutorial (**Fig35**).

Fig 38



BUGATI VEYRON: PART 2

Tutorial by:
EMLYN DAVIES
For more from this artist visit:
www.cr8ivity.co.uk
Or contact them:
design_em@mac.com

Bugatti Veyron
car modelling series

lightwave

The series will cover an in-depth and comprehensive guide to modelling the amazing Bugatti Veyron car, from start to finish, and will focus on the key techniques and stages involved in building the chassis, as well as details such as the windows, lights, vents, petrol caps, engine parts and so on. We will then move on to creating the wheels, including tyres and hubcaps, before going on to building and incorporating an interior, namely the dashboard and seating. The series will proceed with a section on creating and applying materials for the numerous parts of the car, such as the paint work, chrome, rubber and glass, before concluding with a tutorial devoted to setting the scene for a finished render. The final part will cover the importance of a good lighting rig and light parameters, as well as the importance of a camera and the integral part that the rendering settings play in showcasing the model for a portfolio.

This series aims to show a comprehensive guide to creating a finished car for people new to this type of exercise, but is not suitable for beginners who are not familiar with using 3D software. The tutorials do not detail every single step of adding individual edge loops and vertices, but does endeavour to outline each important stage and explain the crucial techniques necessary to following the exercise.

The schedule is as follows:

Issue 029 January 2008
MODELLING THE CHASSIS - BASICS

Issue 030 February 2008
MODELLING THE CHASSIS - DETAILS

Issue 031 March 2008
LIGHTS, RADIATOR GRILL & VENTS

Issue 032 April 2008
WHEELS, TYRES & RIMS

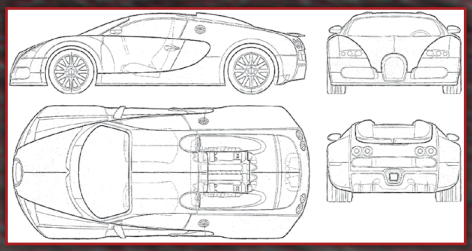
Issue 033 May 2008
INTERIOR

Issue 034 June 2008
THE MATERIALS & FINISHES

Issue 035 July 2008
LIGHTING SET UP & RENDER

ENJOY ...

Blueprints are available here:



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Modelling the Chassis Part 2 - Details

Welcome to Part 2 of this series. Last time we got the basic body shell of the Veyron done. Now we need to get the shell prepared for all its varied fittings. More specifically, this tutorial will include the major things like windows, lights, vents, door handles and fuel hatches.

Before we do anything, go to the backdrop options and load in the saved preset for the blueprints. They should reappear in the respective viewports. If they do not appear, and you are running Lightwave 9.3, activate the backdrop on/off toggle to ensure the backdrops are activated. If you have a different content directory set, you may be prompted to browse to the containing folder.

OK, so let's get started. We'll tackle the main vents first, starting at the front of the car. Start by creating a box three units wide, and four units high. The box should cover the total width &and height of the air vent, as seen in the blueprint front view. The depth of the box isn't important, with the only consideration being that it clears the depth of the front panel where the vent intake exists. In the front view, move the periphery points to match the vent outline. Activate SubD mode to see the smoothed outline. If you wish, you can use the Bandsaw tool around the box to keep its shape clearer when in SubD mode (**Fig01**).

Now make a duplicate by copying and pasting the box to a new layer, then scale the box so that it is slightly smaller than the original. This duplicate will allow us to easily create the outside edge loops (**Fig02**).

With the main front body section in the foreground layer, select the larger of the two boxes as the background layer. Now use the solid drill tool (stencil mode) and stencil the shape into the body shell. It can make life

Fig 01

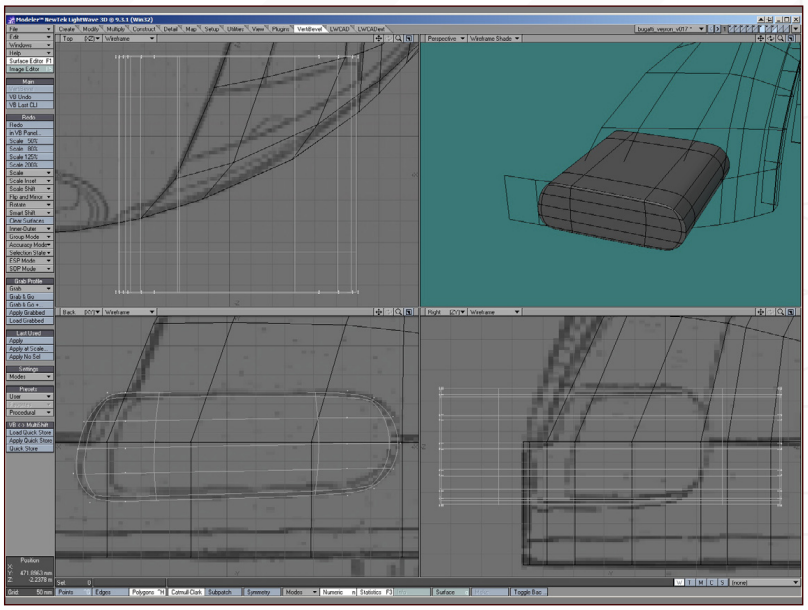


Fig 02

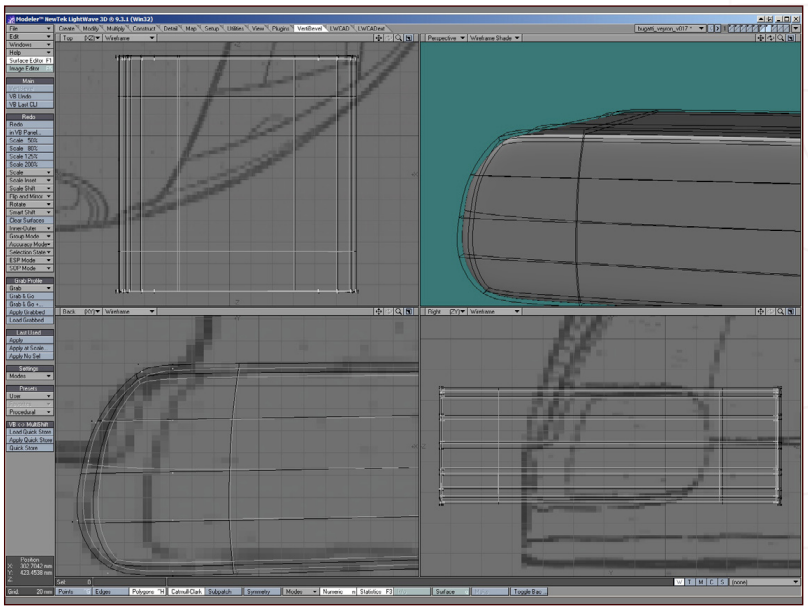
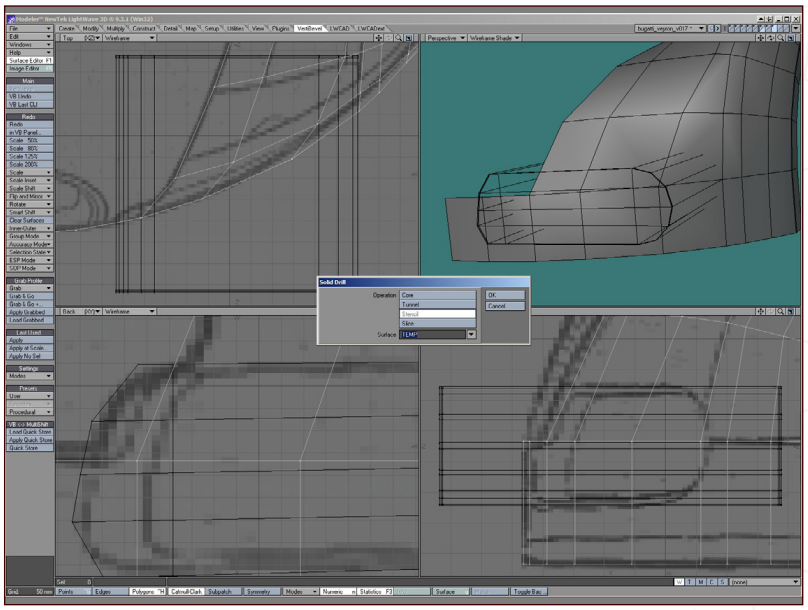


Fig 03



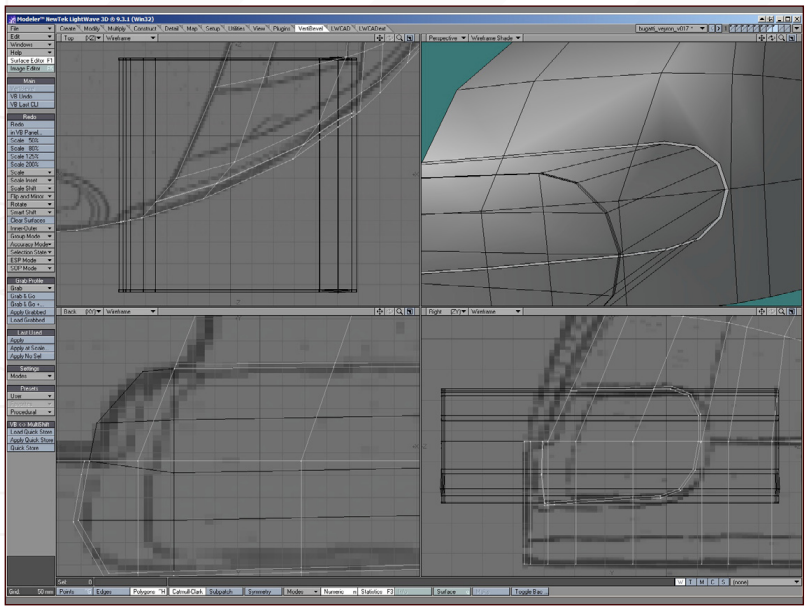


Fig 04

easier in the short term to assign a different surface shader at this stage (**Fig03**).

Now, with the body shell geometry still in the foreground layer, select the smaller box as the background layer and, again, stencil the shape, but this time assign the main body shell shader. You should end up with a different coloured outline stencilled into the body shell (**Fig04**).

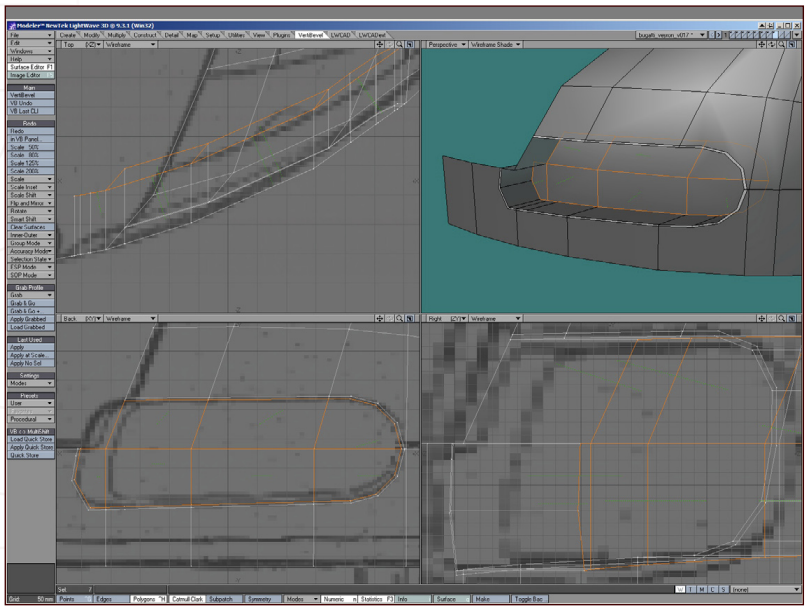


Fig 05

Now select all the polygons inside the stencilled outline. We are going to recess these polygons. To do this, select the smooth shift tool (Shift F), press N to open the numerics panel. 'OK' it with a value of zero. Now, with the polygons still selected, move them backwards, as shown in the plate (**Fig05**).

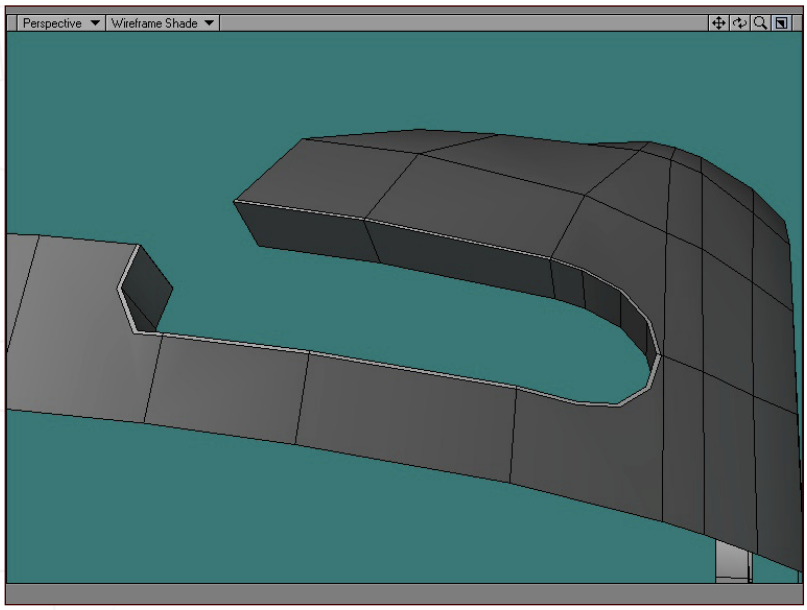
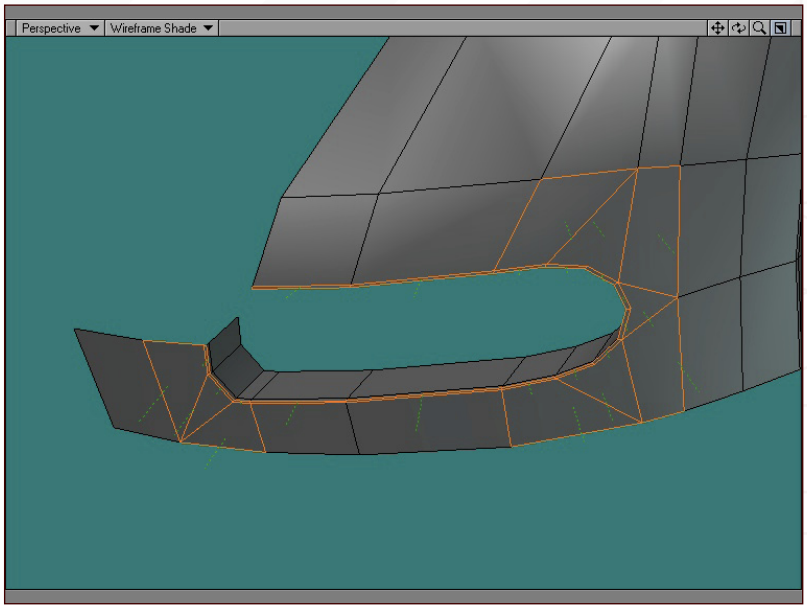


Fig 06

Delete the surplus polygons once you have completed the shift (**Fig06**).

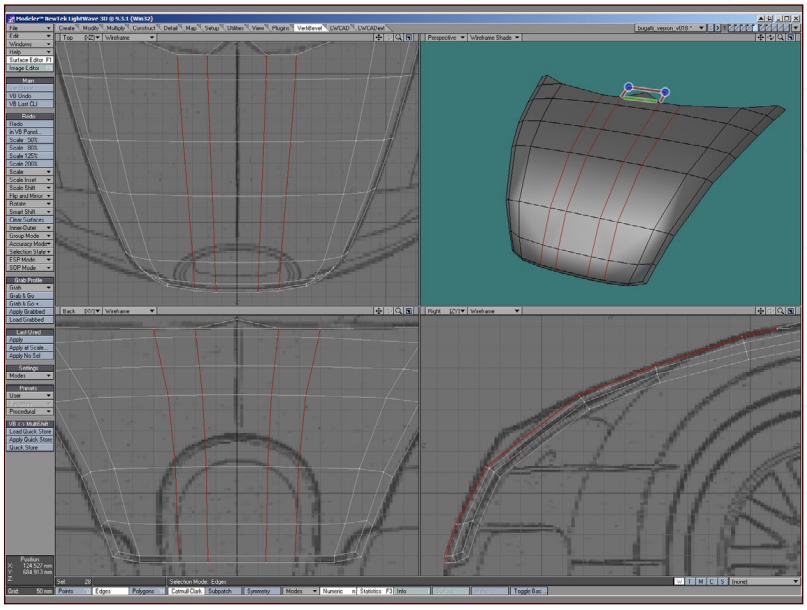
Next we need to tidy up the area we just stencilled. The first step is to tackle the loop around the outside of the vent opening. The first thing to do is to check all the points around the stencilled geometry for duplicate points. Select all points in turn (in wireframe mode is easiest), and if you find more than a single point selected, weld them together and move on.

Fig 07



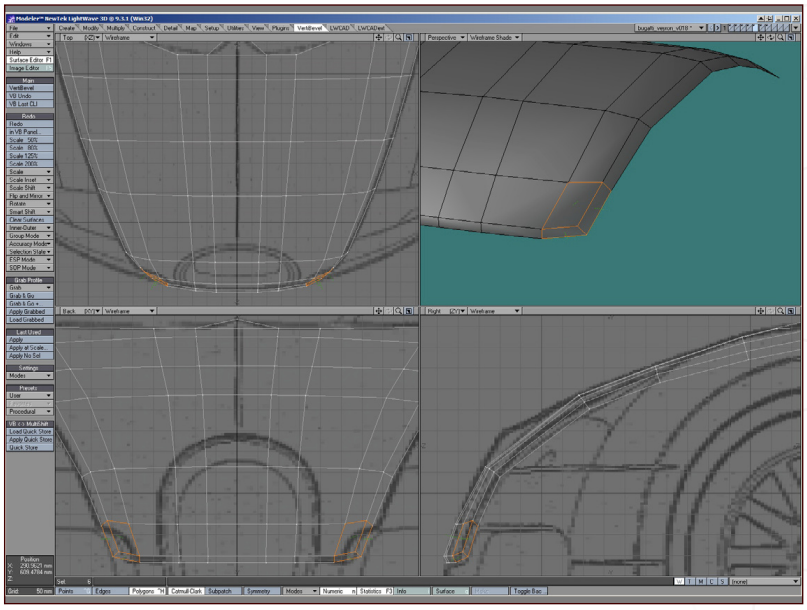
Select the polygons in poly mode, then switch to point mode. Then select each pair of corresponding inside and outside points, and then divide the polygon (Ctrl L). We also, of course, have what used to be quads around the vent which need tidying up. As you can see in the plate, I have opted to divide the polygons by running triangular-shaped polygons from the corners. Most of the time, the quickest method to use is simply tripling the nGons, and then re-merging the triangle polygons into quads. Sometimes though, tripling doesn't divide the polygons in a useable fashion, in which case we'll need to resort to the Divide Polygon tool once again (**Fig07**).

Fig 08



Next, we add the small peak in the centre of the rear edge of the bonnet. Firstly, select two adjoining polygons along the centre line of the bonnet (back to front). Use the bandsaw tool to cut a line up the bonnet. Set the cut size to 50% to create the cut central in the selection. The main consideration is that the line should reach the top, in alignment with the end of the peak. This should be applied to the other side of the bonnet, as well. Now select two adjoining polygons either side of the centre line and Bandglue them together into a single row. Now extend the top edge of that centre row (marked on the plate in green) and extend backwards (as marked in red), then weld the resulting points (marked blue). This then gives us the main basis of the central peak in the bonnet's rear/top edge (**Fig08**).

Fig 09



Now we move to the bonnet (hood), and the vent opening that we have been working on needs to be extended to the bonnet, also. Now the sharp ones amongst you will spot a U-turn

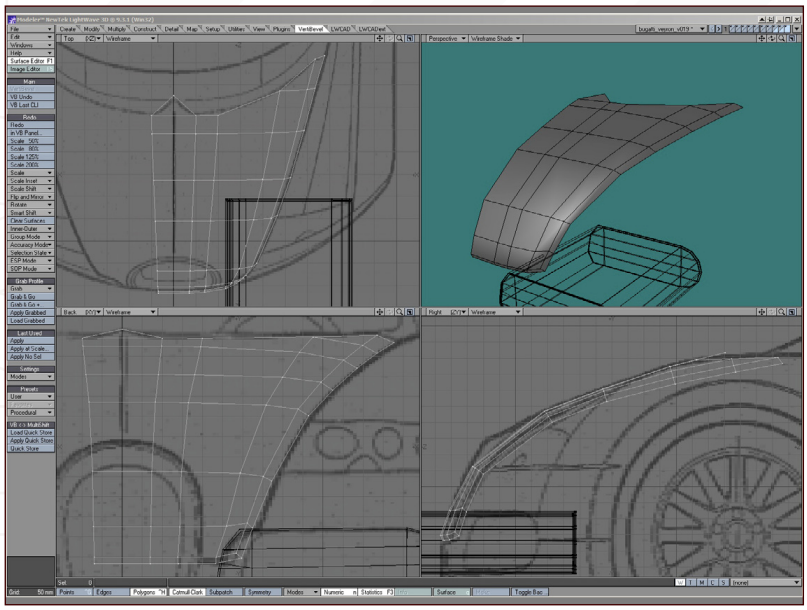


Fig 10

here. In the last instalment, we modelled in an inset corner on the bonnet. Now put that corner back on. You can either rescue it from your saved increments, or you can model it back on quickly – it's very quick and easy either way! **Note:** you'll save time by doing one side and mirroring it over (**Fig09**).

OK, so now delete the polygons on the left side of the bonnet, then bring the larger of the two vent objects into the background layer. Use the solid drill tool once again in stencil mode. As before, assign a new shader for the moment when you stencil, as this is a little easier to work with. Repeat this with the second vent outline, this time assigning the original shader (**Fig10**).

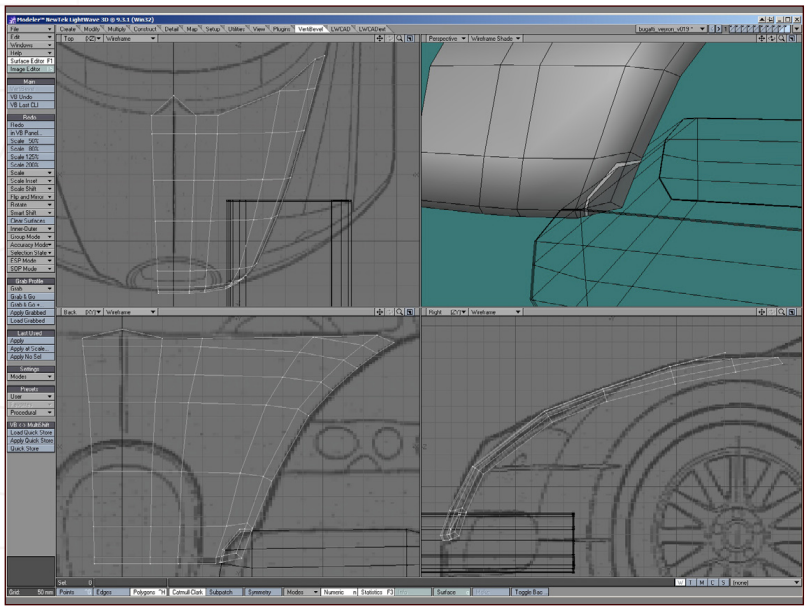


Fig 11

You should then be left with a coloured strip of polygons cut into the bonnet. This will form the basis of the vent contour in the front of the bonnet. Now delete the polygons forming the corner of the bonnet outside the stencilled loop and select the polygons forming the new loop, then select opposing points and use the divide polygon tool to split the nGons into quads (**Fig11**).

What you should end up with at the end is the corner clipped off the bonnet, and with a row of polygons around its edge, all quadded to enable subdivision.

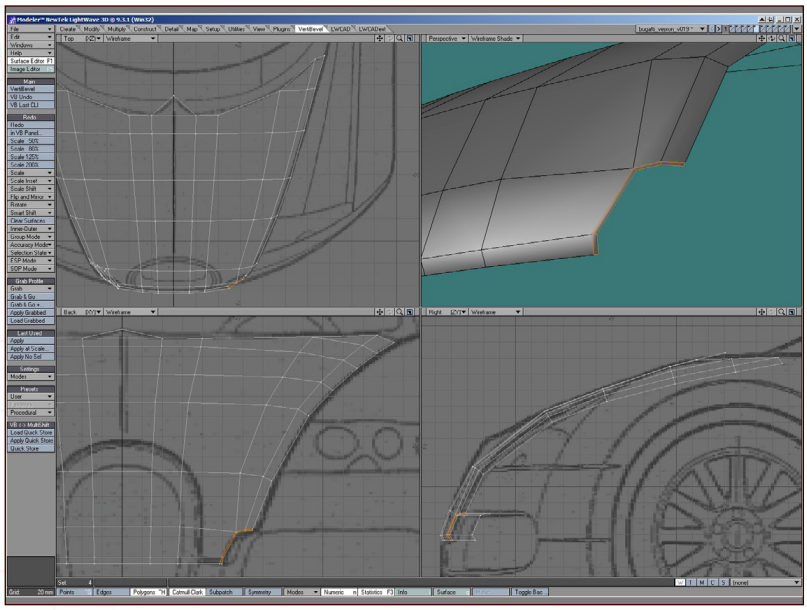
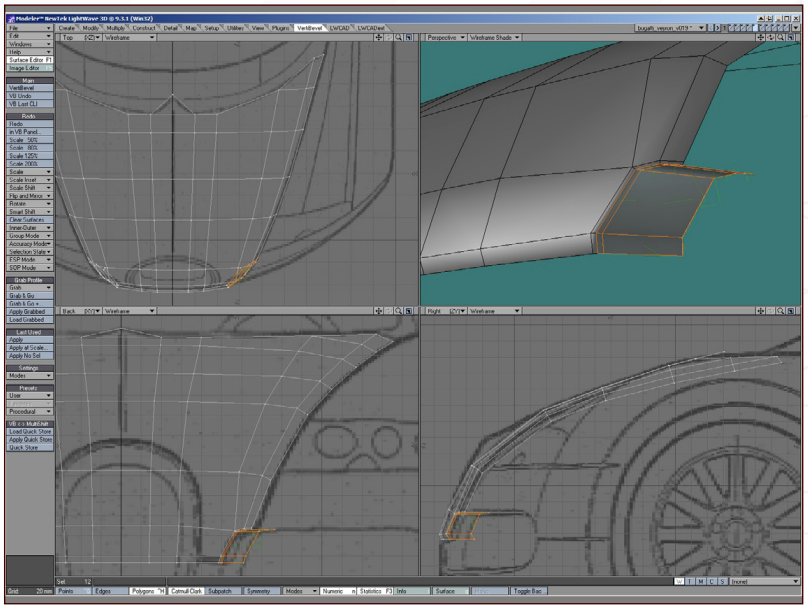


Fig 12

Hit Tab to toggle between polygons and subdivision, just to double-check you have all the polygons tidied up (**Fig12**).

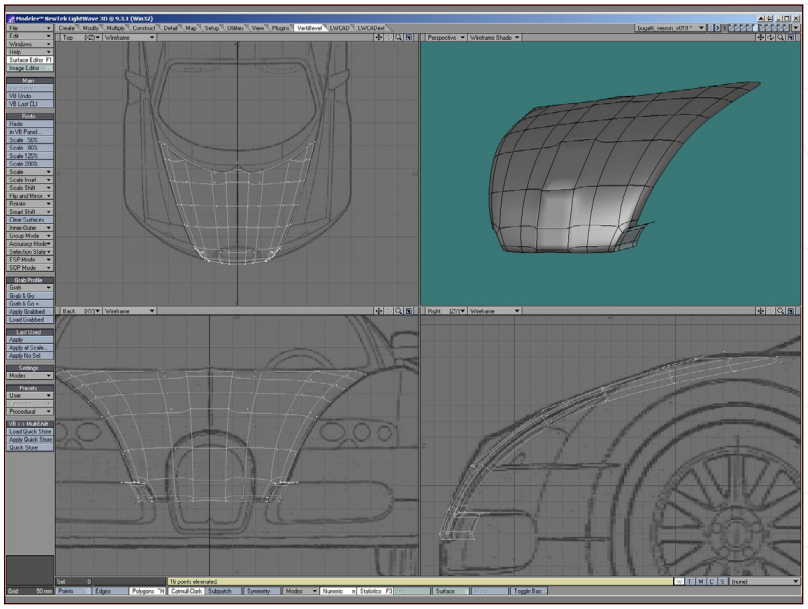
Now select the points along the edge of the bonnet cutout, and then, using the extender tool, extend the bonnet cutout backwards. Do this in two steps: first a short amount to add an inside edge loop (this should match to the same loop of the front wing geometry), and the second larger, to match the blueprint in the side view (**Fig13**).

Fig 13



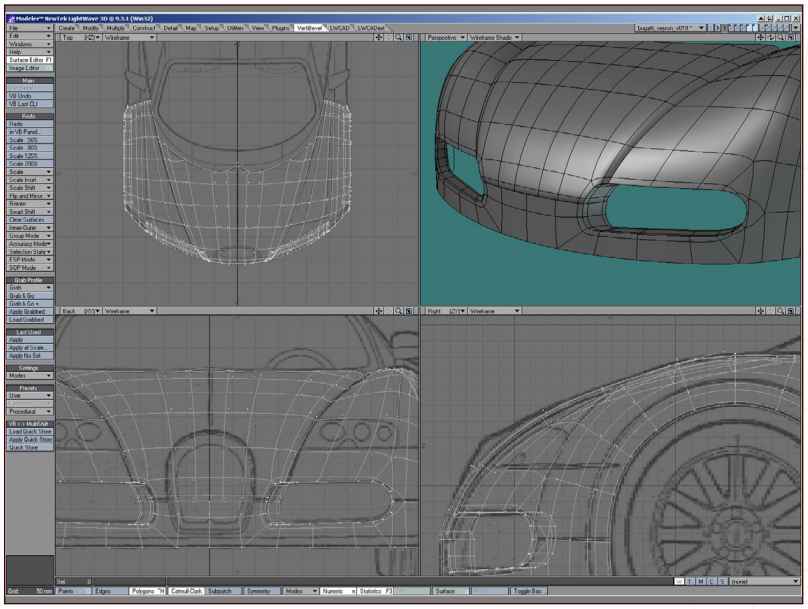
Now mirror the bonnet back over to the other side. Because we didn't have an exact middle line, if you hit Tab now then you'll see an odd distortion down the middle line of polygons. This is because the mirror command also mirrored the polygons which spanned the centre line, so we have some duplicate polygons. To fix this, we need to unify the polygons (Ctrl I) (**Fig14**).

Fig 14



If you now bring the bonnet and the front wings together and press Tab, you should see they line up nicely to form the main stay of the frontal features (**Fig15**).

Fig 15



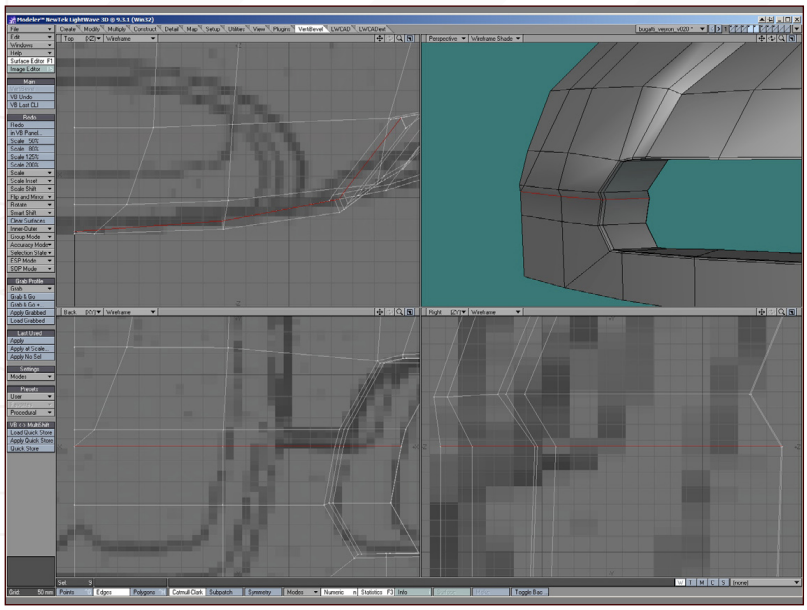


Fig 16

At this stage, I choose to join the bonnet to the front wing geometry. It won't remain completely one piece as the main wing section is going to become a separate panel. Copy the two pieces of geometry into the same layer and weld the matching pairs of points together along the centre bonnet line (**Fig16**).

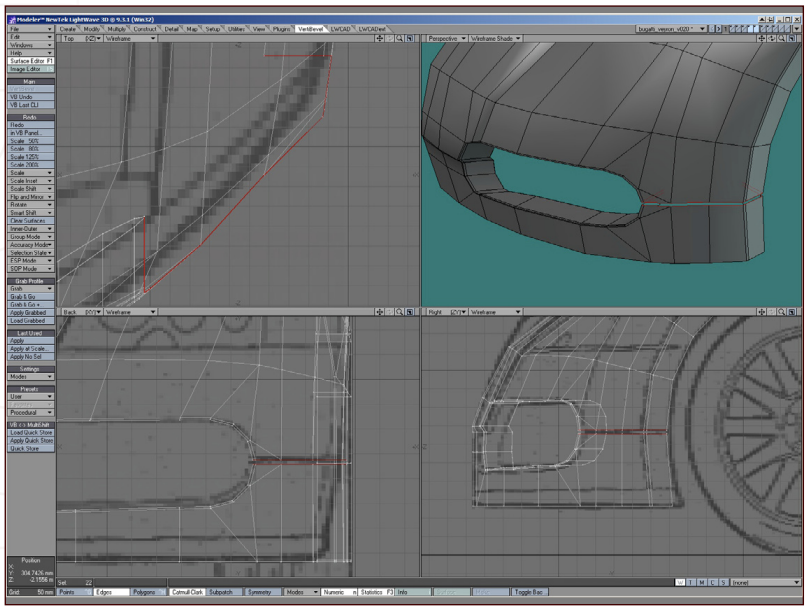


Fig 17

Now use the knife tool to slice in, and delete a row of polygons where the panel gap fits in on the blueprint (**Fig17**).

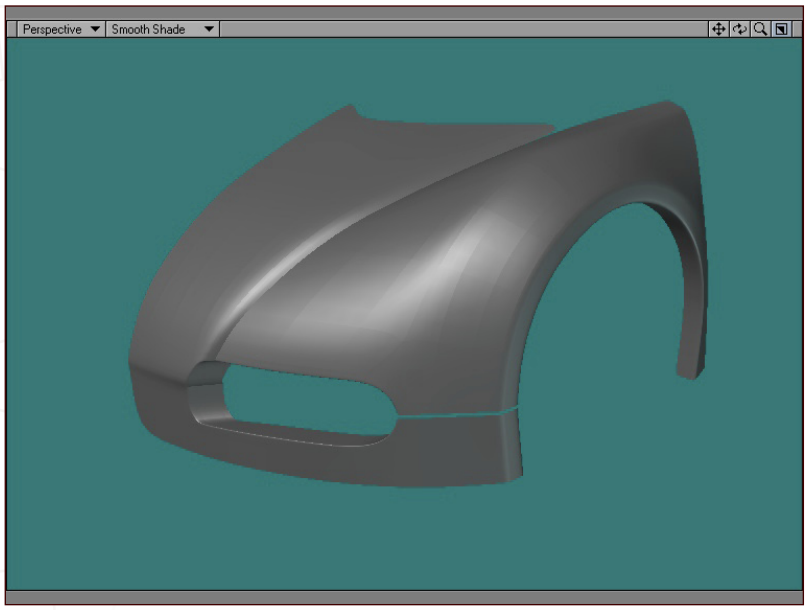
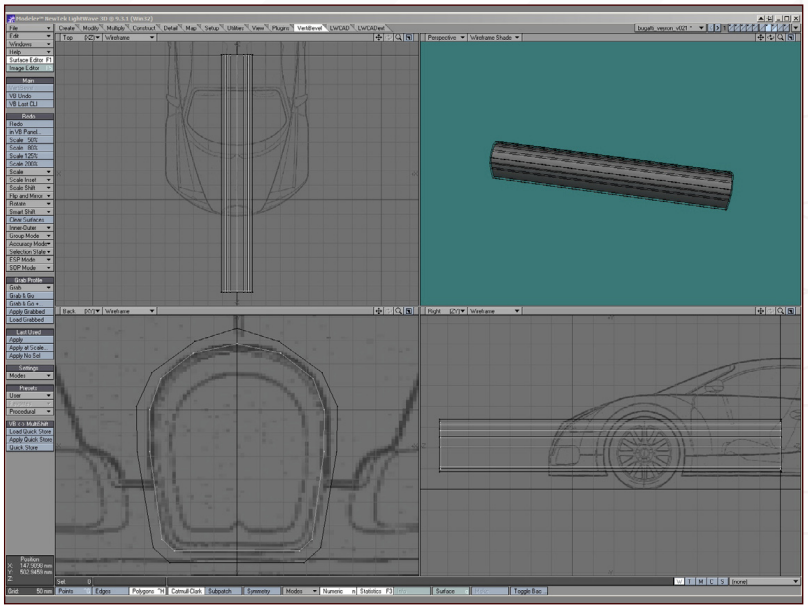


Fig 18

When you hit Tab, you should have a pretty decent front end, as shown inset (**Fig18**).

Next up is the front radiator grill. To create this, I started out with a fourteen-sided cylinder. Use the drag tool to move the points to match the outline of the outside profile of the chrome grille trim. For quickness turn on symmetry, then you need only adjust one side and the other will be matched automatically. Once done, copy and paste into another layer and adjust the points outwards. This should represent the rough profile of how the grille shape merges in with the main bonnet geometry (**Fig19**).

Fig 19



Now, with the bonnet in the foreground layer and the outer grille stencil in the background layer, use the solid drill tool in stencil mode. Assign a temporary shader for ease of working. Now repeat the process with the inner grille stencil in the background. This time assign the default shader so that you are left with a coloured row of polygons (inset) (**Fig20** and **Fig21**).

Fig 20

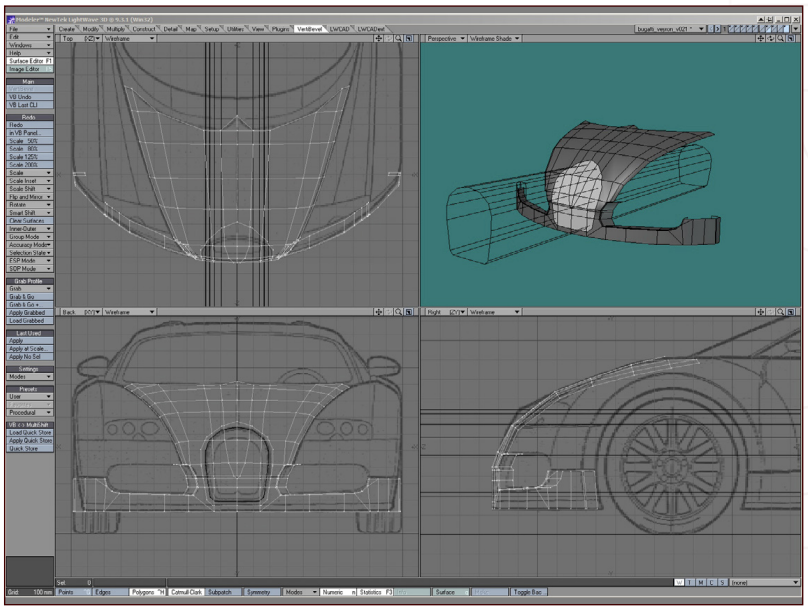
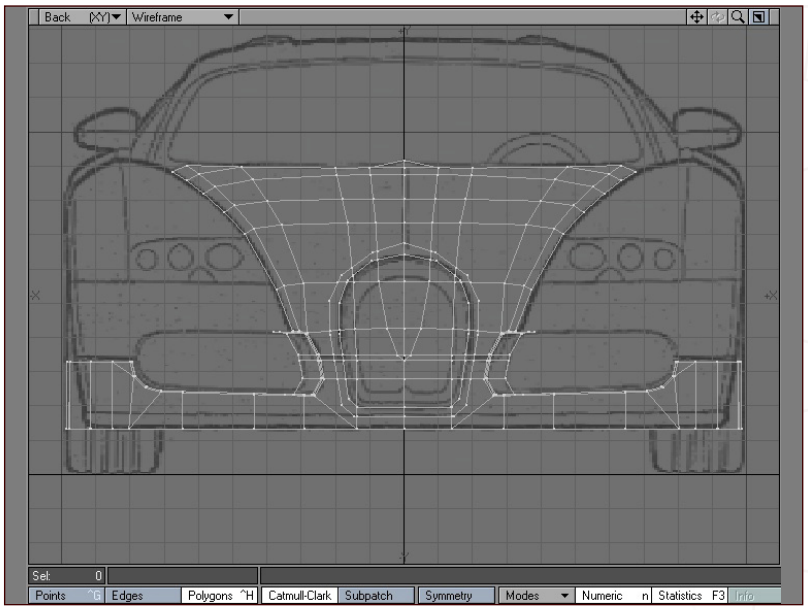


Fig 21



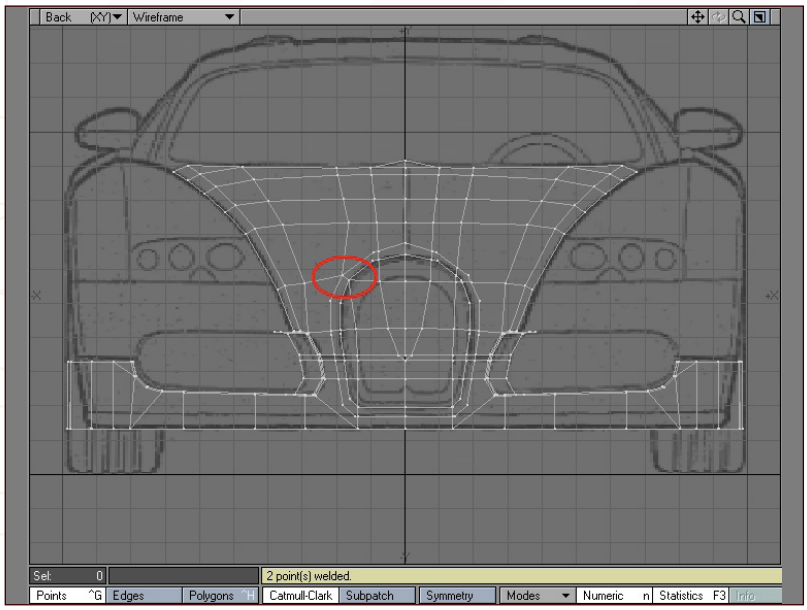


Fig 22

In this plate, you can see how we need to tie up the loose points to the profile of the radiator grille. Notice that, in the inset plate, we are also tripling all those polygons we have been left with that have greater than 4 sides. We need to address all such polygons around the stencilled area (**Fig22** and **Fig23**).

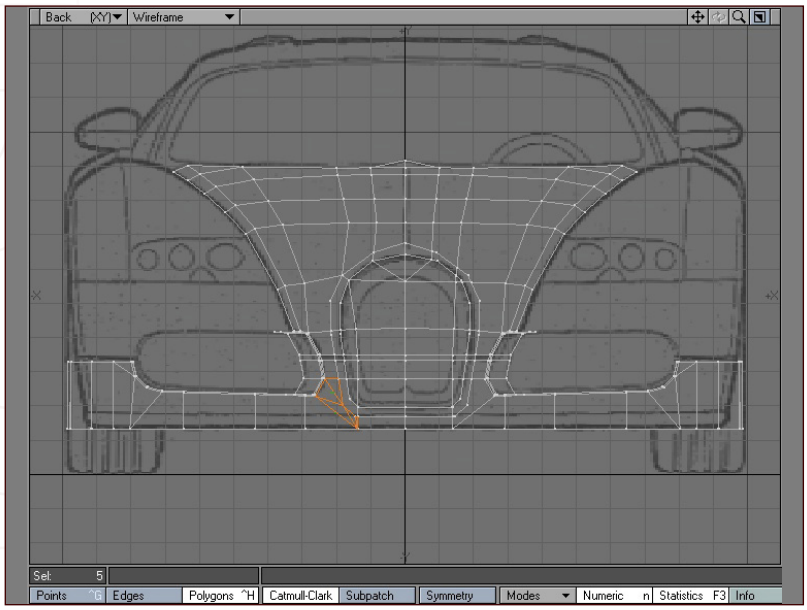


Fig 23

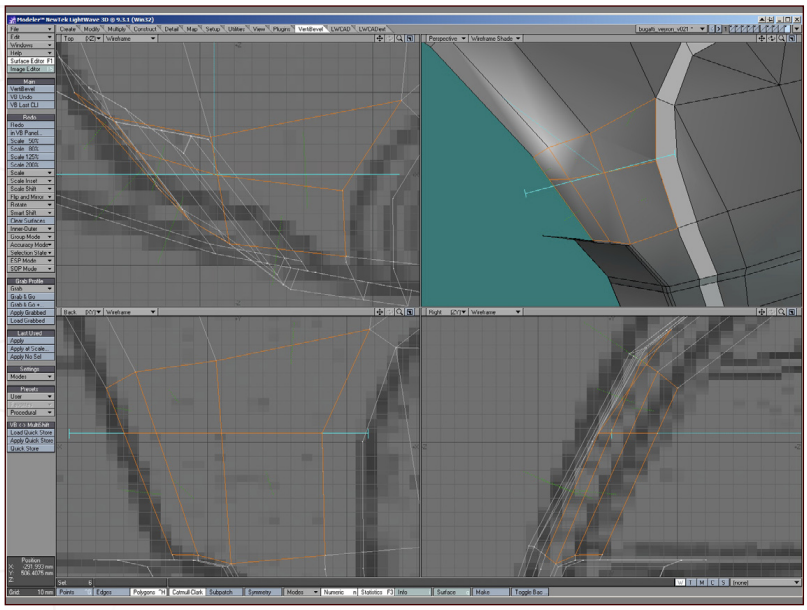
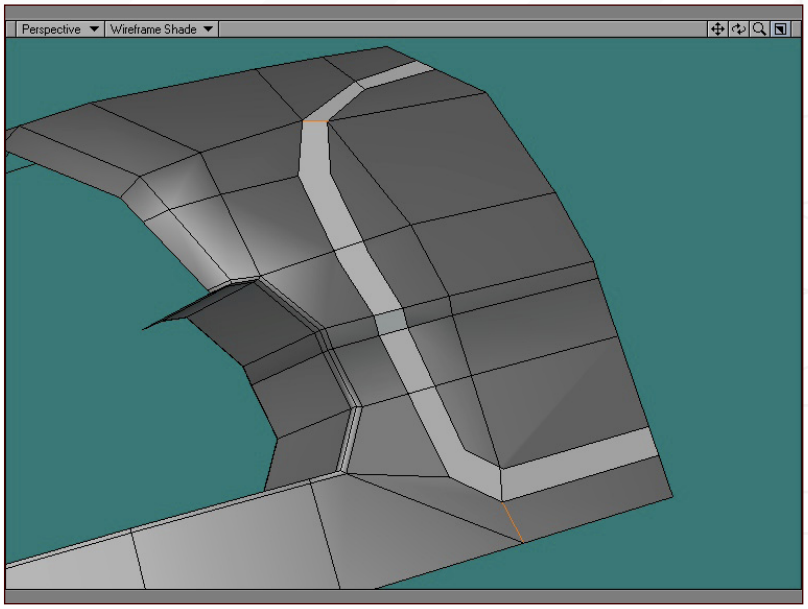


Fig 24

Select the row of polygons leading across to the radiator grille, as shone in the plate. Using the knife tool, cut a line directly across to the stencilled grille, joining as closely to the 'loose' point as you can (**Fig24**).

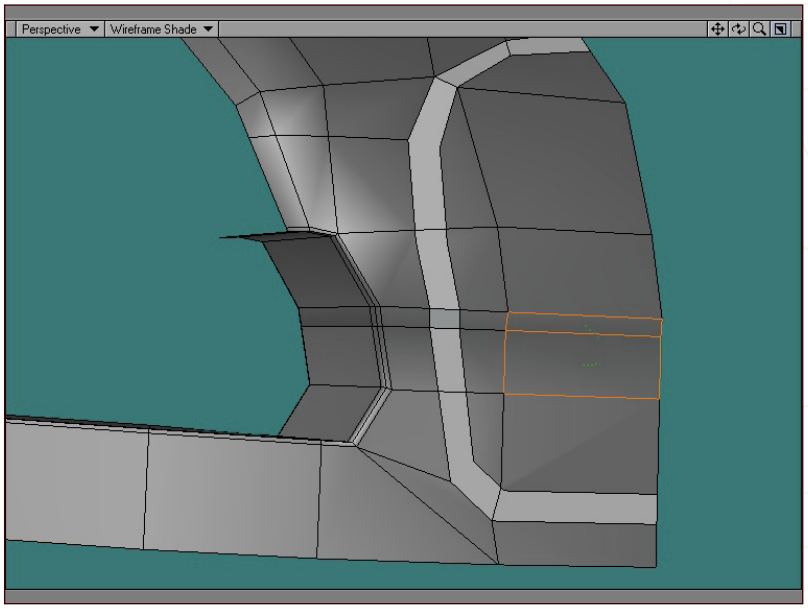
As we go, we should make a point of finding and eliminating two point polygons. You can easily identify two-point polygons by either looking at the stats panel or by seeing warnings displayed by Modeller when toggling Subdivision on and off. Catmull-Clark Subdivision will show signs of distortions around areas where two point polygons exist (**Fig25**).

Fig 25



To aid easier working ongoing, select the two polygons, as shown, that contain the contour and Bandglue them in to a single row (**Fig26**).

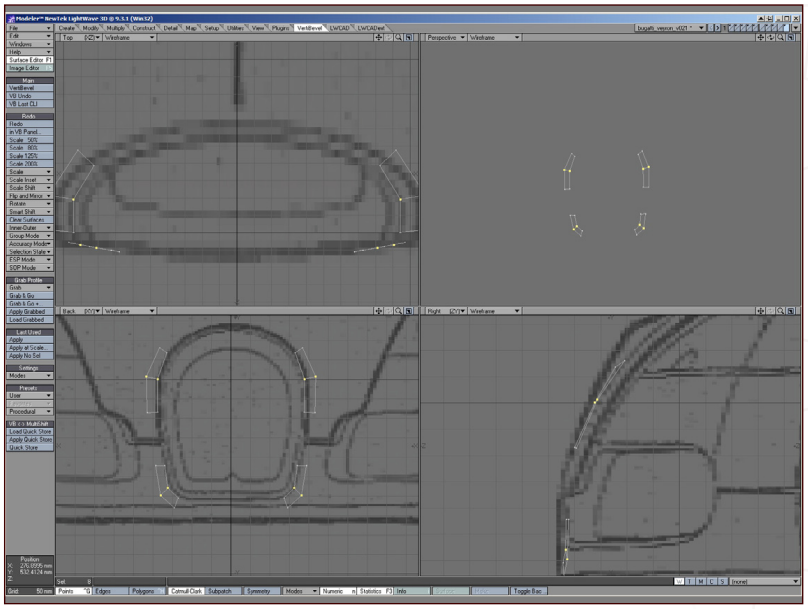
Fig 26



There may still be four polygons in the radiator grille loop that are actually nGons. If so, isolate them and select the central pair of points in each one (you can actually select the points on all four at once), and then use the divide polygon tool to split them into quads.

You may also delete the polygon from the centre of the radiator grille (**Fig27**).

Fig 27



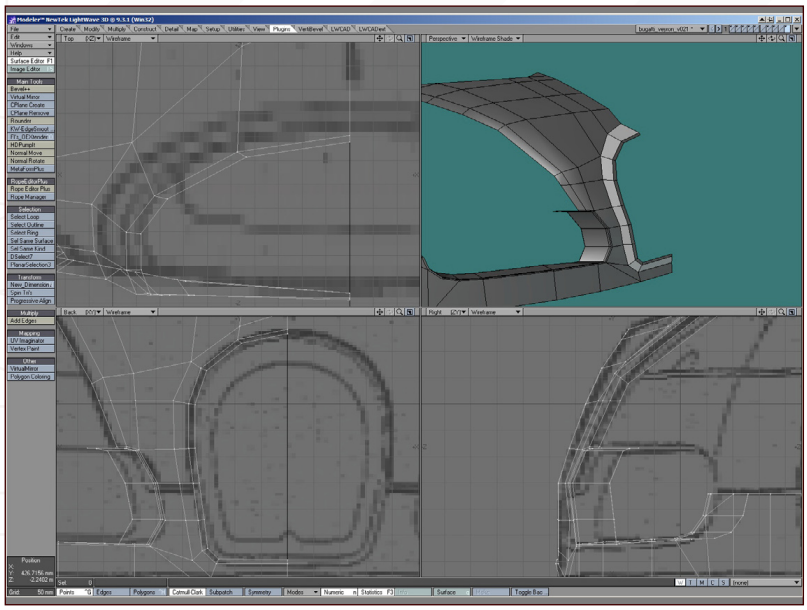


Fig 28

Now delete half of the bonnet (whichever side you like, it doesn't matter). Select the loop of polygons which form the actual grille outline, and move them forwards using the side view for alignment. The distance required is actually not very much for this step. With the polygons still selected, use the shear tool to slide the geometry forward. The shear tool always seems to be set to work in the opposite way to that which you actually want (**Fig28**).

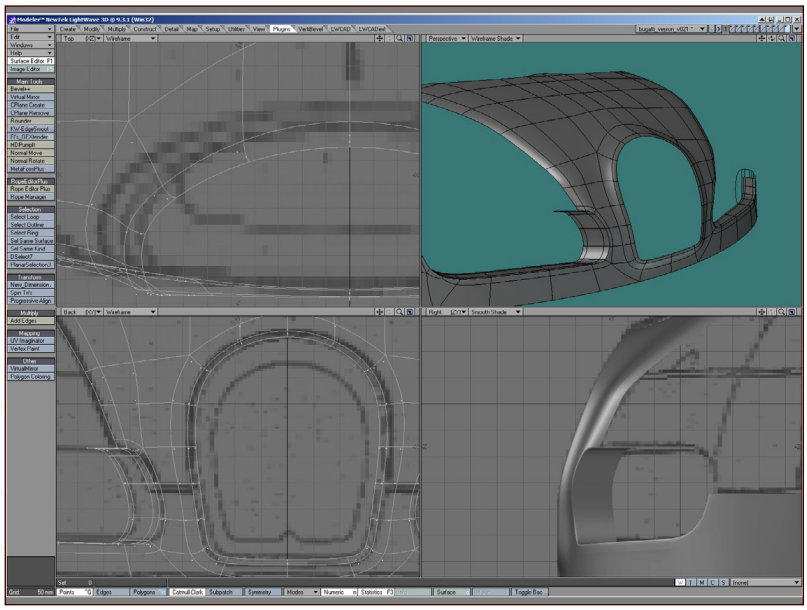


Fig 29

This plate shows the general setup for this operation, and it's worth noting that, typically, you will not get properly matched with the backdrop with a single shear tool operation. So the easiest thing is to do it in steps, de-selecting polygons from the bottom-up each time, gradually bringing the grille into alignment with the backdrop image. This can be a slightly trial and error process, but you will quickly find, if you haven't already, just how powerful the shear tool is. It's one of my most frequently used tools!

Now mirror the model to create both sides, and hit Tab. You should have a good bonnet with a contoured radiator grille opening (**Fig29** and **Fig30**).

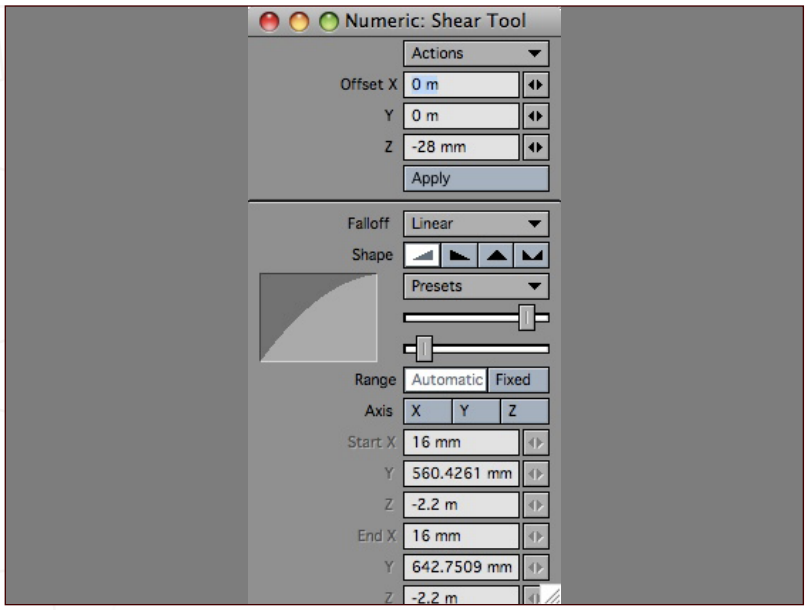
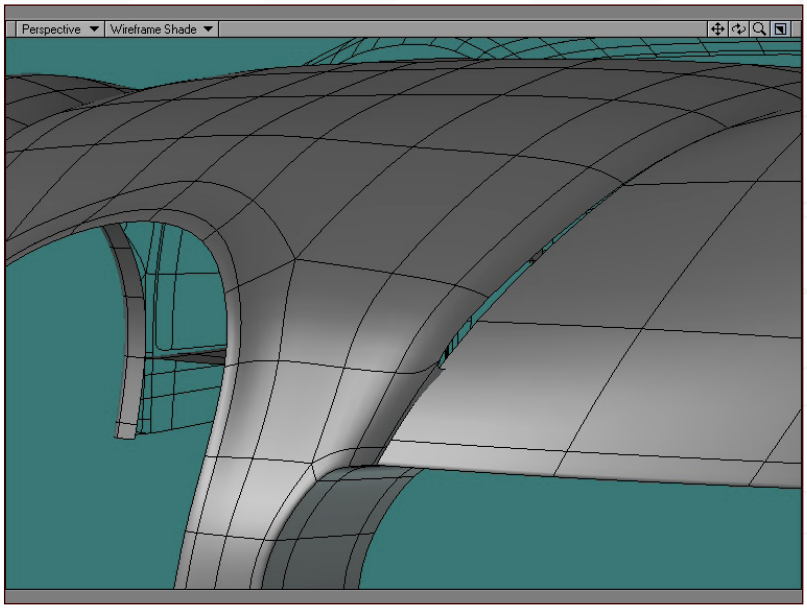


Fig 30

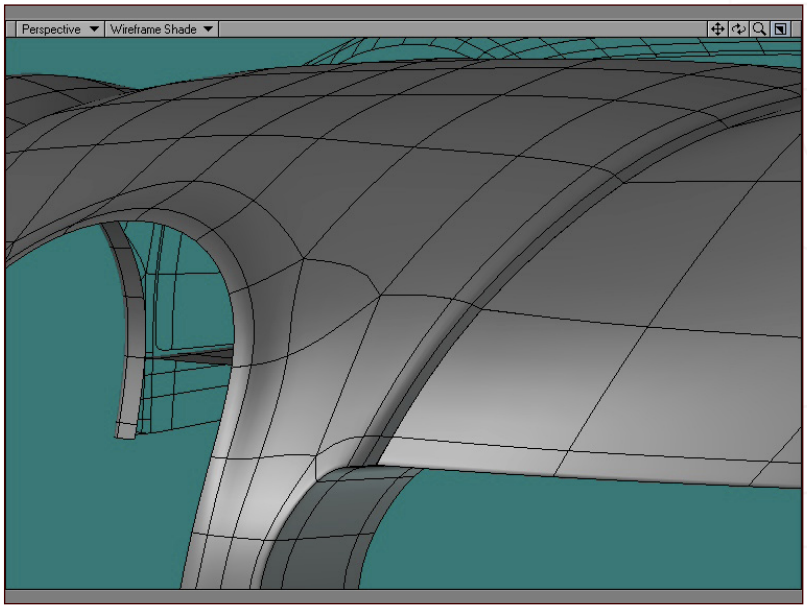
When we bring the front wings into the view with the bonnet, we can see we have an extra row of edges. The problem with this, as you can see, is that it makes it a little tricky at the moment as the curve doesn't match the wing (**Fig31**).

Fig 31



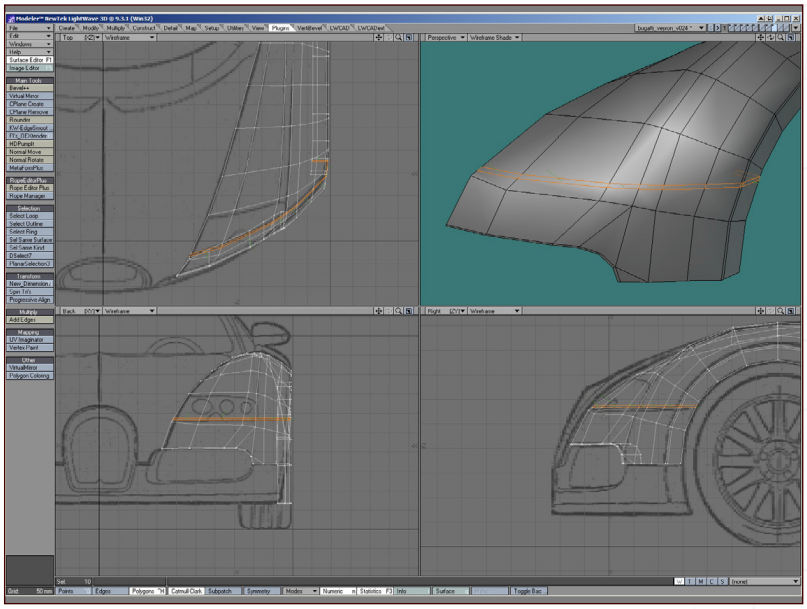
To fix this, we can simply weld the two rows together. Leaving the grille contour in tack, we start welding the lower points to the upper points through to the edge of the bonnet. This should leave the profiles matched (**Fig32**).

Fig 32



The next thing on our list is to split the front wing into the separate sections, and adding the placements for the headlights. First, following the background images, use the knife tool to cut a band across the wing to form the panel gap. Conveniently, the polygons we are knifing are all quads, so we are left with all quads as well (**Fig33**).

Fig 33



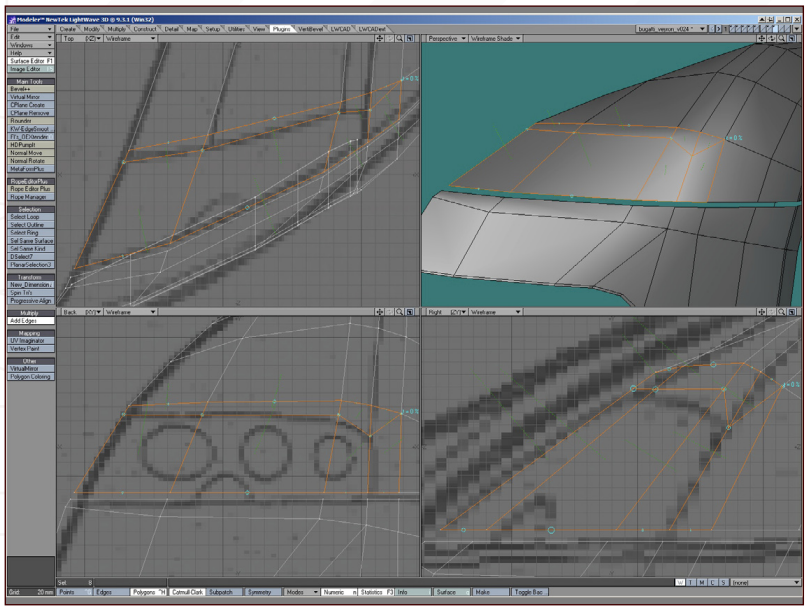


Fig 34

Now we select the polygons that encompass the headlight in the front view. Then, using the Add Edges tool, roughly follow the outline of the headlight by adding edges (**Fig34**).

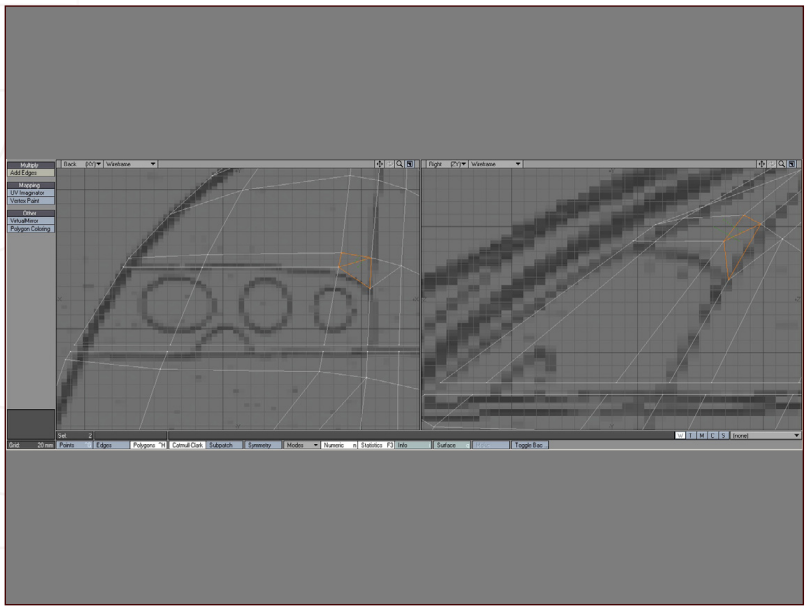


Fig 35

Now select the quad next to the triangle we just selected, and triple it. Then select the original triangle we started with, and also the adjoining triangle of the two we just created, and merge them together (**Fig35**).

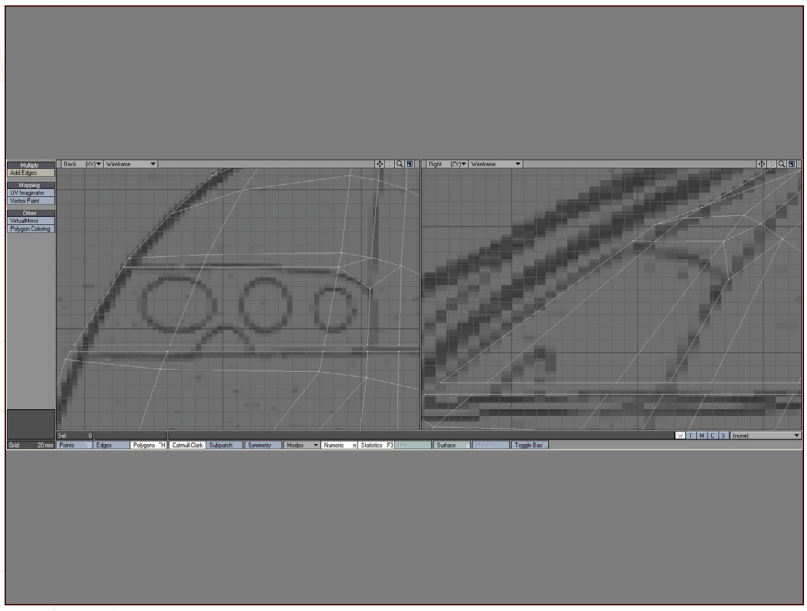
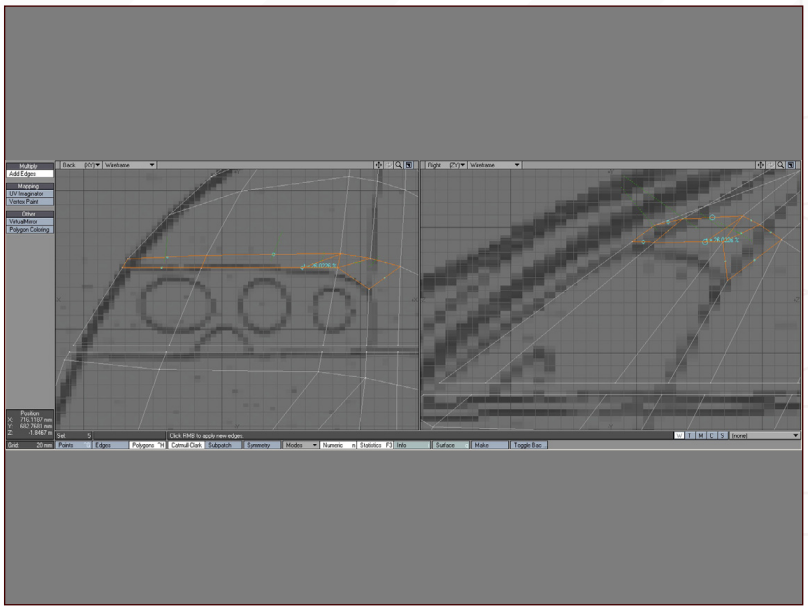


Fig 36

What we are doing here is just creating a tidier 'run in' of polygons to the opening for the headlights (**Fig36**).

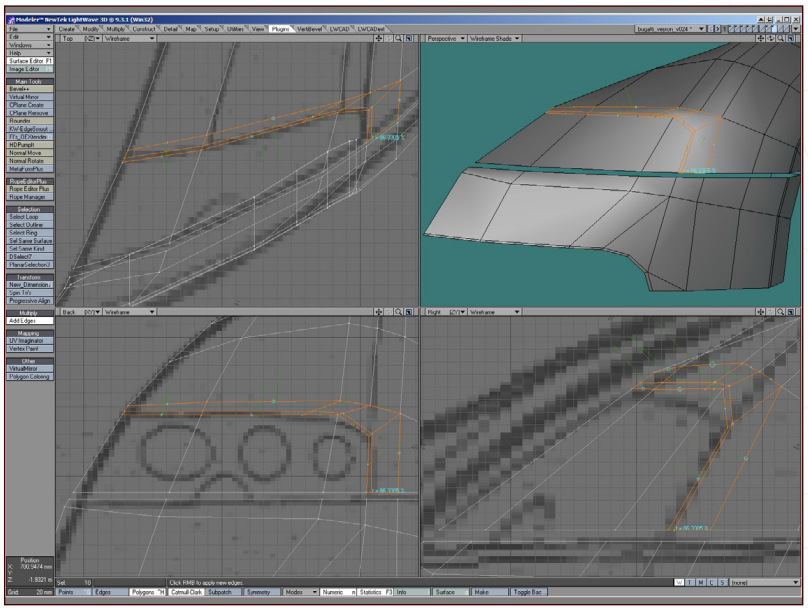
Now select the row of polygons across the top of what will become the headlight opening. Now use the Add Edges tool and add a single edge approximately where shown in the plate. Where the edge is added you'll now have two triangles, so merge those polygons to form a quad (**Fig37**).

Fig 37



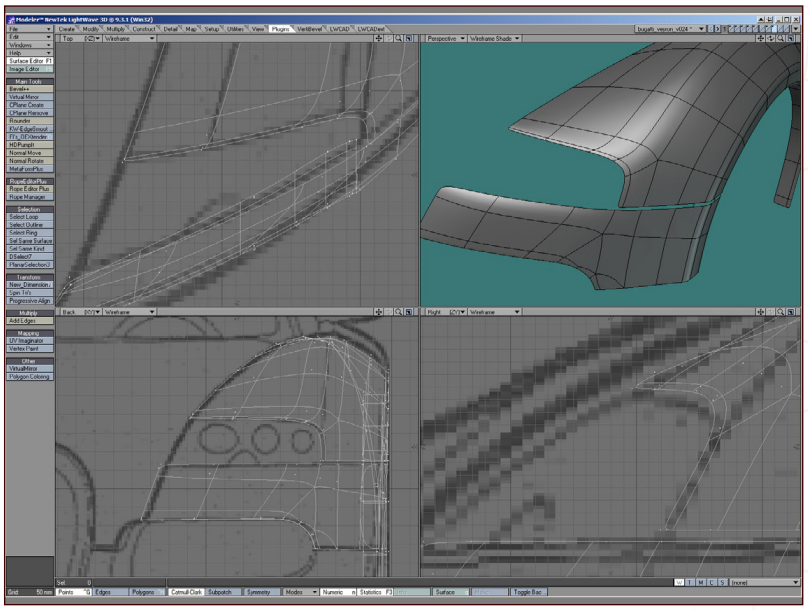
Select the polygons around the headlight opening, then use the Add Edges tool to insert a row of edges tight around the opening (**Fig38**).

Fig 38



Once done, select the polygons covering the headlight opening and delete them. If you then hit Tab to toggle subdivision mode, you should have a smoothed headlight opening (**Fig39**).

Fig 39



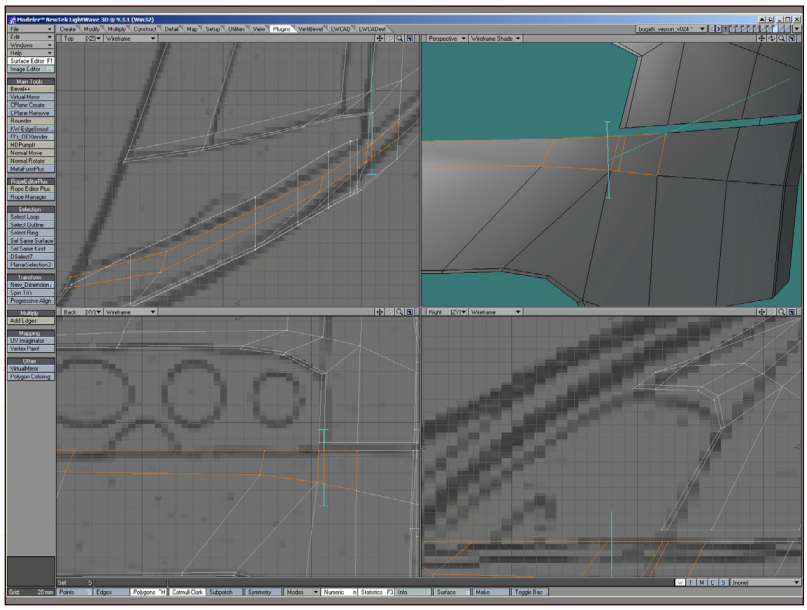


Fig 40

In order to keep our geometry tidy and matched up below the headlight, select the polygons below the headlight, as shown in the plate, and use the knife tool to add a vertical cut in alignment with the geometry above (**Fig40**).

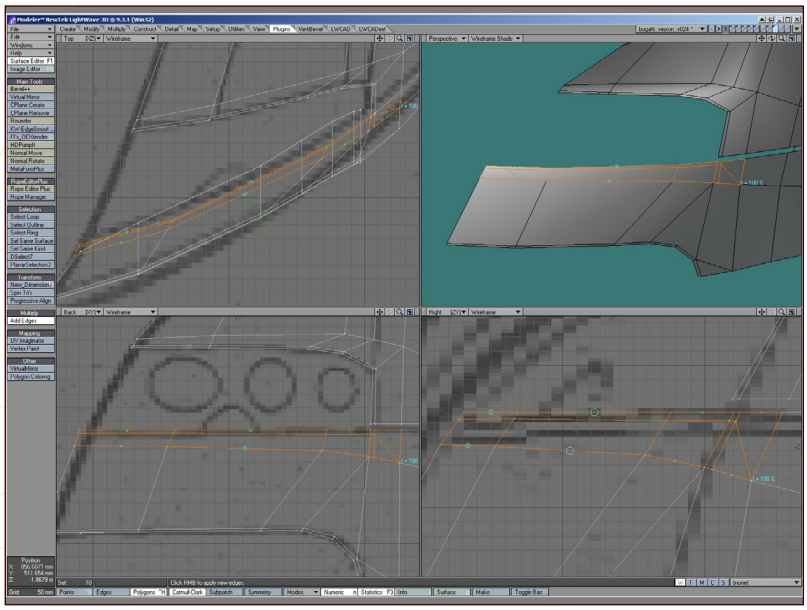


Fig 41

With the same polygons still selected, use the Add Edges tool to add a row of edges along the underside of the headlight opening, terminating the last edge at the bottom right corner of the last polygon. You'll notice the last polygons at the bottom are a small thin quad and a triangle. Merge these two polygons together to form a single quad (**Fig41**).

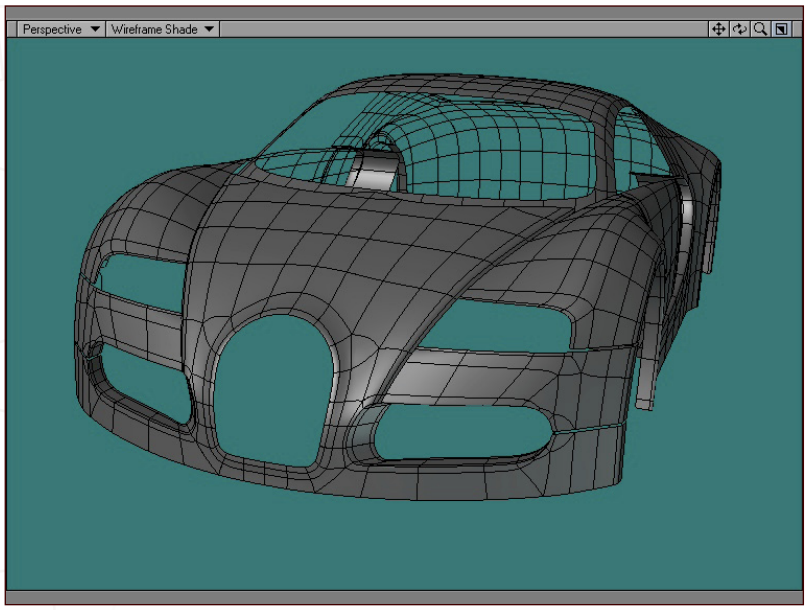


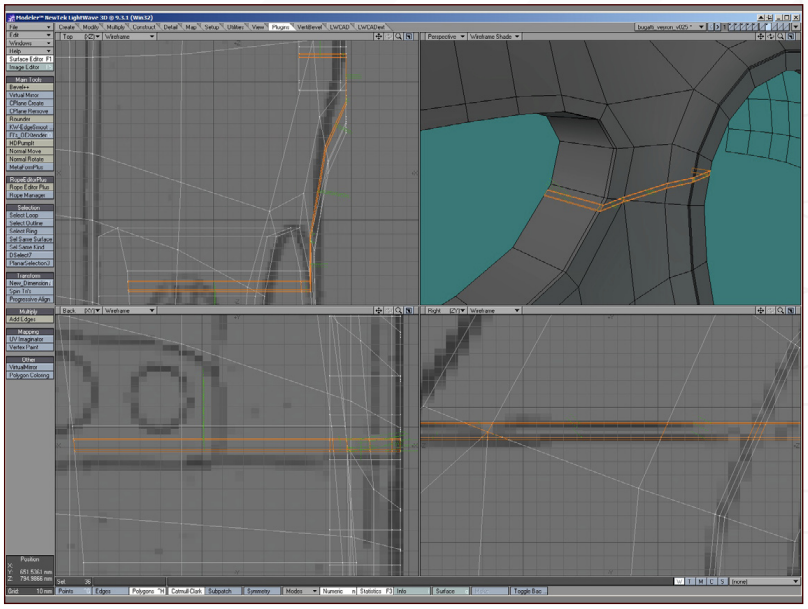
Fig 42

With the whole model mirrored across, you should have something that looks suspiciously close to this (**Fig42**).

If you don't, just re-check your steps. With minor variations aside, you should have what looks very much like the front of the Veyron at this stage! Cool!

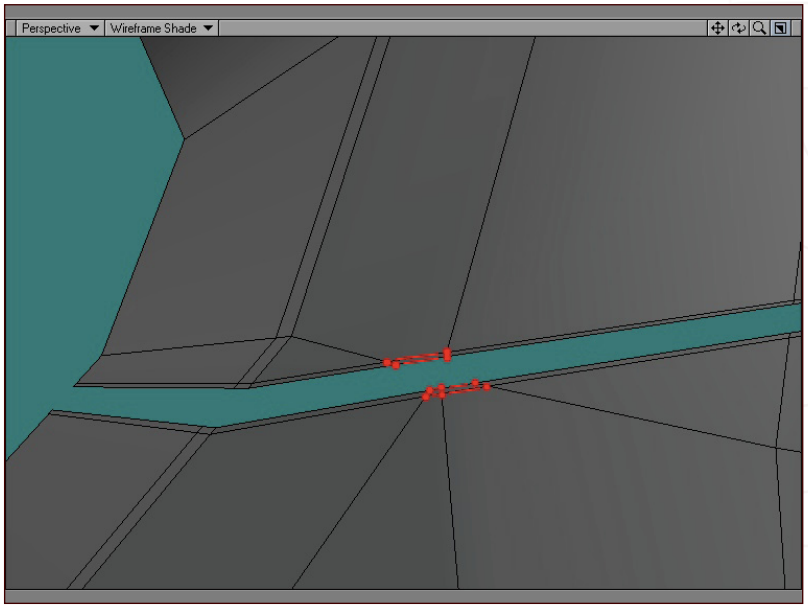
Next, use the knife tool to cut the panel groove that runs from the rear wheel arch to the inset side panel. When two cuts have been made to match the gap in the background image, add a very close cut just above and just below. Finally, delete the central most row, leaving the two thinner rows intact (**Fig43**).

Fig 43



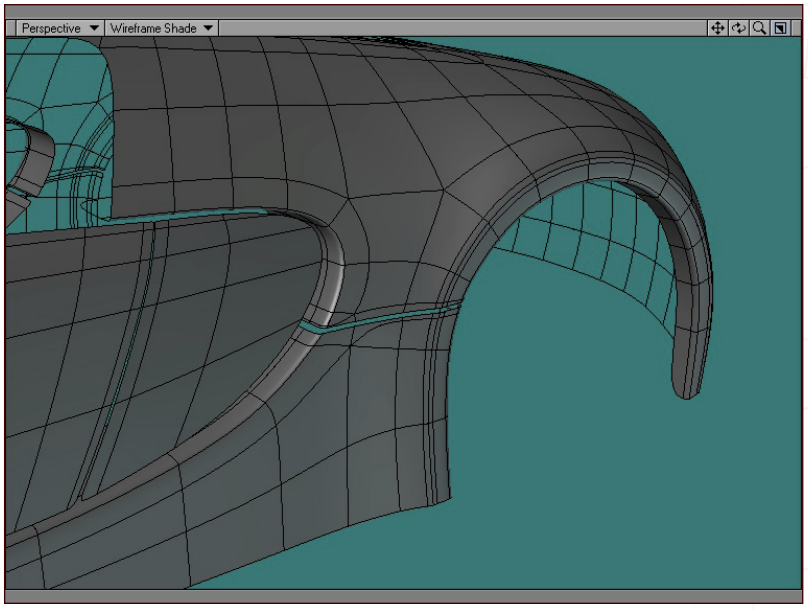
Now we need to weld the sets of points denoted by the lines together. This will eliminate the greater than four-sided polygons. Remember to check for, and delete, the two-sided polygons that will have been left (**Fig44**).

Fig 44



When you toggle sub-patch mode on, you should get a good smooth result, as seen here. If not, just double-check you have no one- or two-point polygons (**Fig45**).

Fig 45



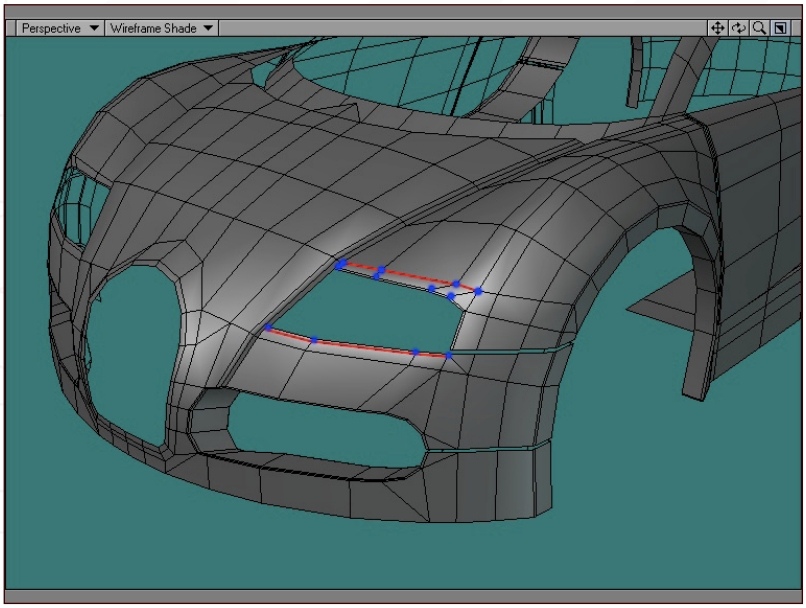


Fig 46

Now, another one of my (in)famous U-turns! (Hey, what can I say? You'll find sometimes that which looks good one day will seem far less impressive the next!) So, what I am basically doing now is eliminating the edges highlighted in red by welding the blue-highlighted points to the edge of the headlight opening (**Fig46**).

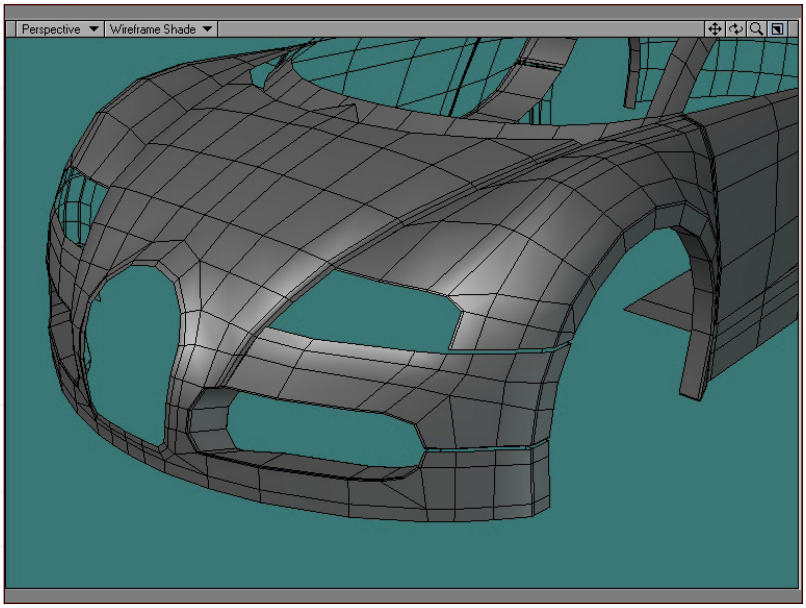


Fig 47

The result should look like this: a slightly smoother termination of geometry into the headlight opening (**Fig47**).

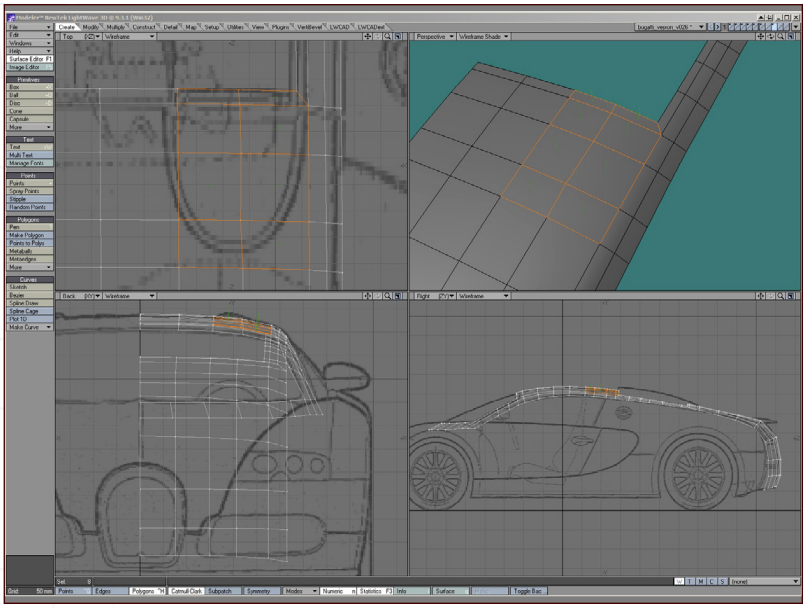


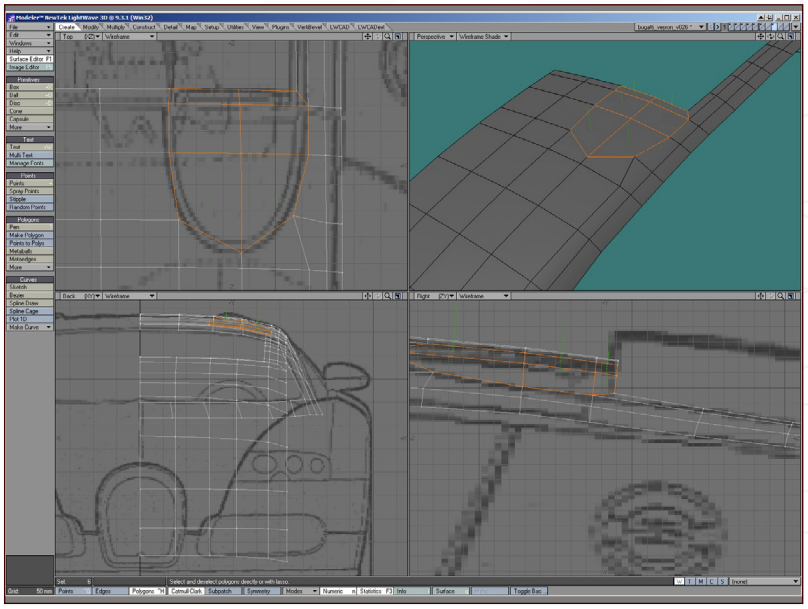
Fig 48

OK, so now we are moving on to the roof, looking at adding the roof contours which open down into the air intakes.

Start off by selecting the eight polygons, shown in the plate. This will form the general area of the intake contour (**Fig48**).

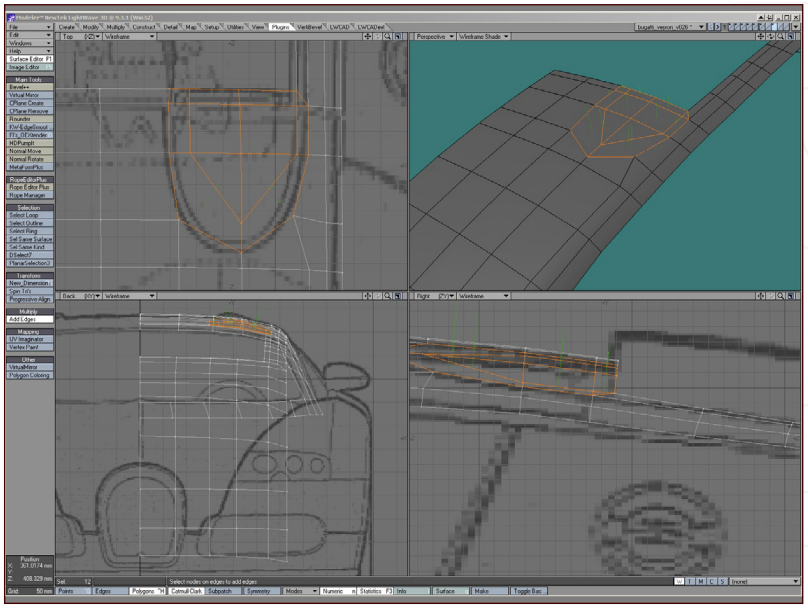
Following the top view, use the Drag Tool to move the periphery points to match the outline of the intake contour. Don't worry about the middle points as we'll be dealing with those soon enough (**Fig49**).

Fig 49



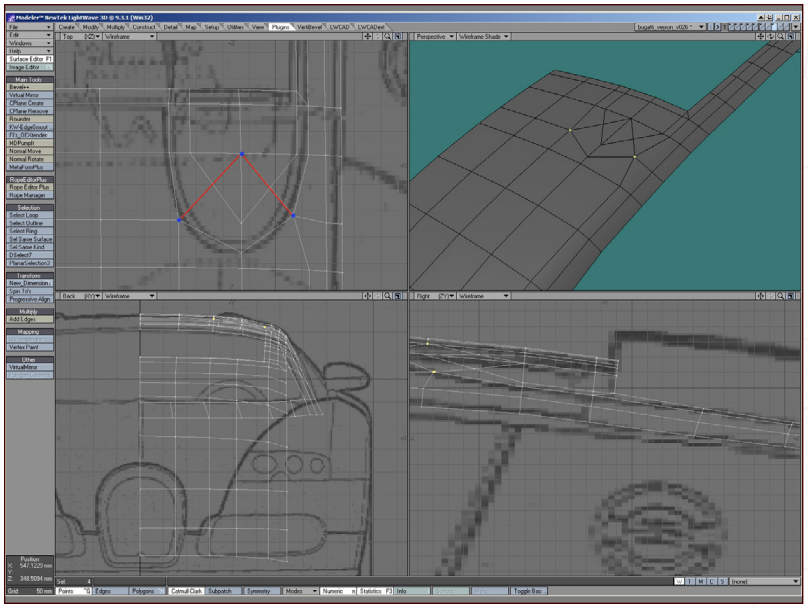
Using the Add Edges tool, create a new set of polygons within the group we've already selected, as shown in the plate (**Fig50**).

Fig 50



Now, using the knife tool, cut across the edges we added (highlighted red), and then weld up the mismatch of the points, noted by the blue highlights (**Fig51**).

Fig 51



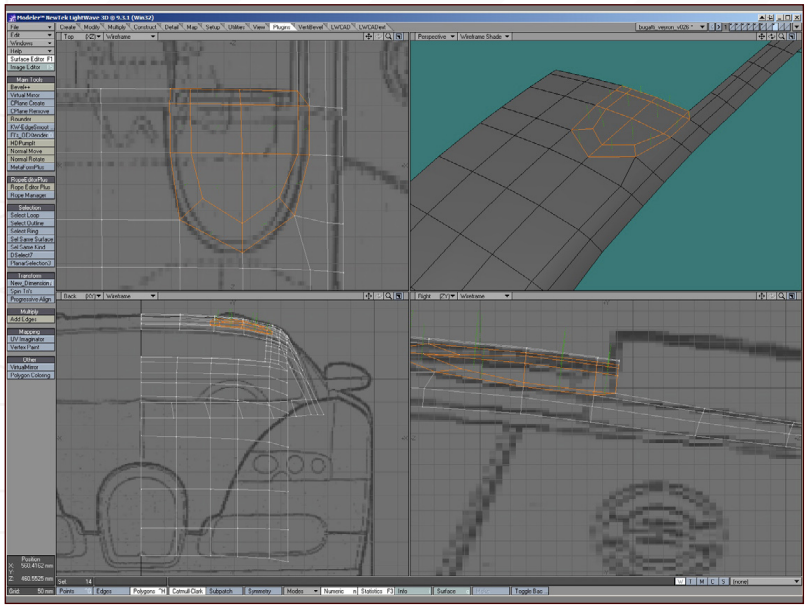


Fig 52

Now adjust the profile of the inner set of edges, as shown. This will allow us to sink the indent down into the roof. Don't worry too much about the absolute positioning as we can tweak this later on, very easily (**Fig52**).

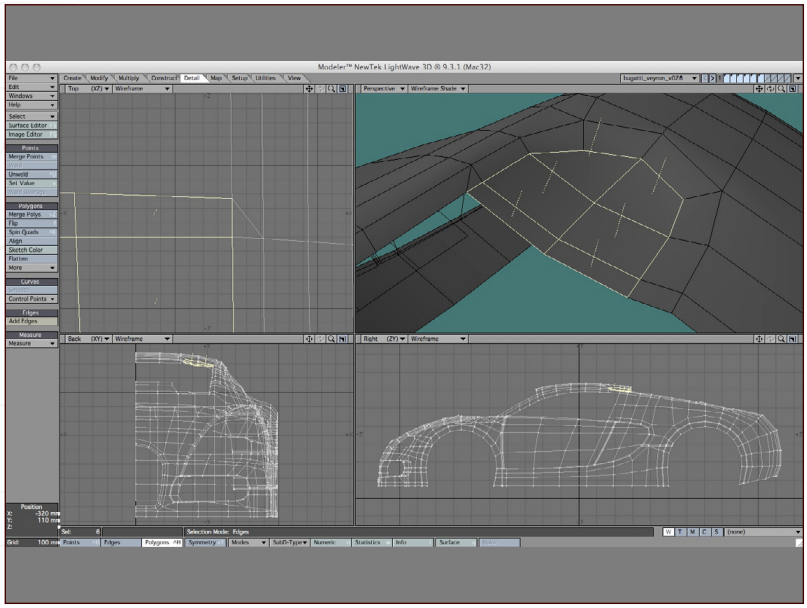


Fig 53

Now the six polygons form the inner group, downwards. We have a further step to complete elsewhere before we completely finish this part, but the main intake profile is there now (**Fig53**).

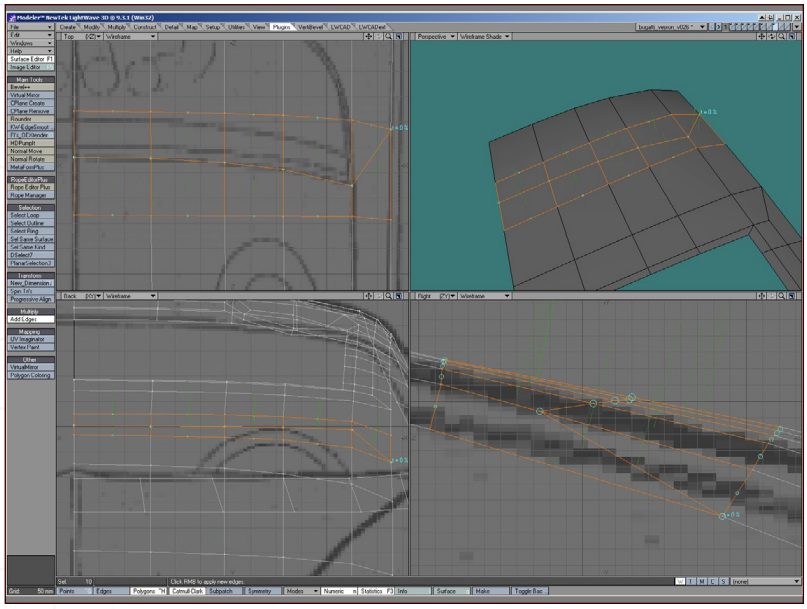
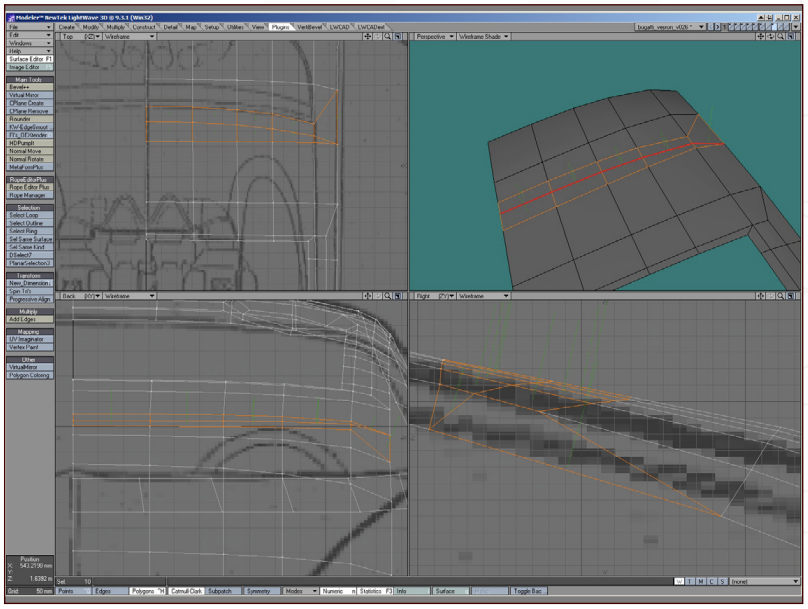


Fig 54

Next up, we need to make space for the lift-up wing behind the engine compartment. Select the five polygons which form the row one back from the back edge, as shown. Use the Add Edges tool to create a profile of edges following the wing area's front edge. Terminate the last one to the back corner of the last polygon (**Fig54**).

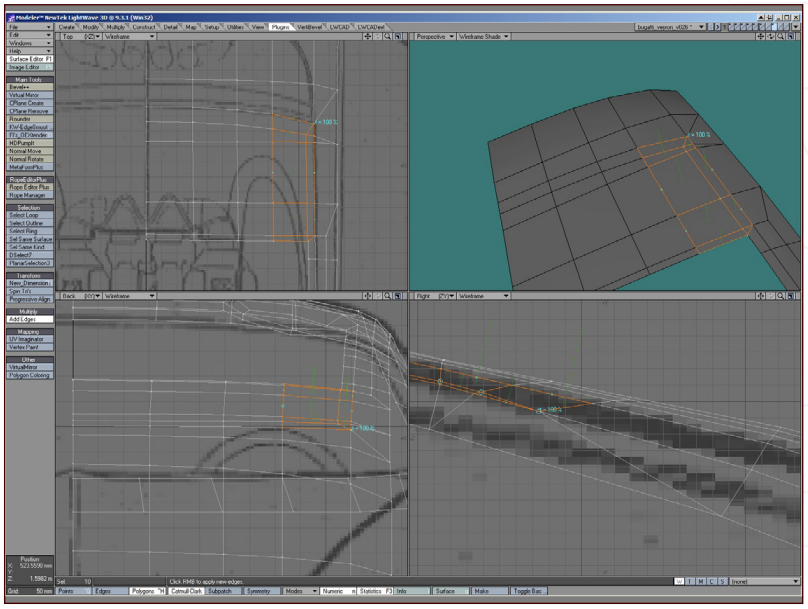
Now use the Add Edges tool once again to add a line of edges, as shown, this time terminating it at the front corner of the last polygon (**Fig55**).

Fig 55



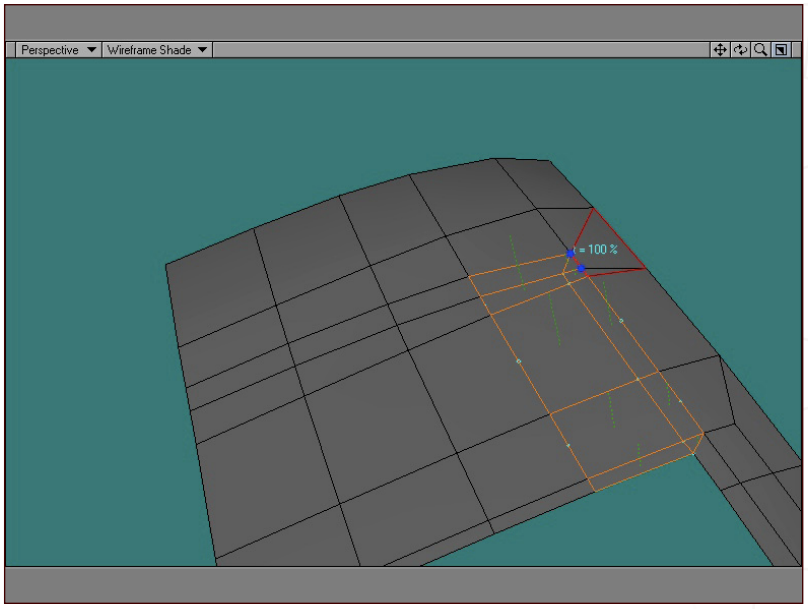
Staying with the Add Edges tool, select the polygons encompassing the group shown and use the Add Edges tool to create a line of edges that will meet up with the band of polygons which circumvent the engine compartment opening (**Fig56**).

Fig 56



Now select the two points, shown in the plate, and weld the front point to the point in the back corner. This will leave you with two triangle polygons, so weld these together to form a single quad polygon (**Fig57**).

Fig 57



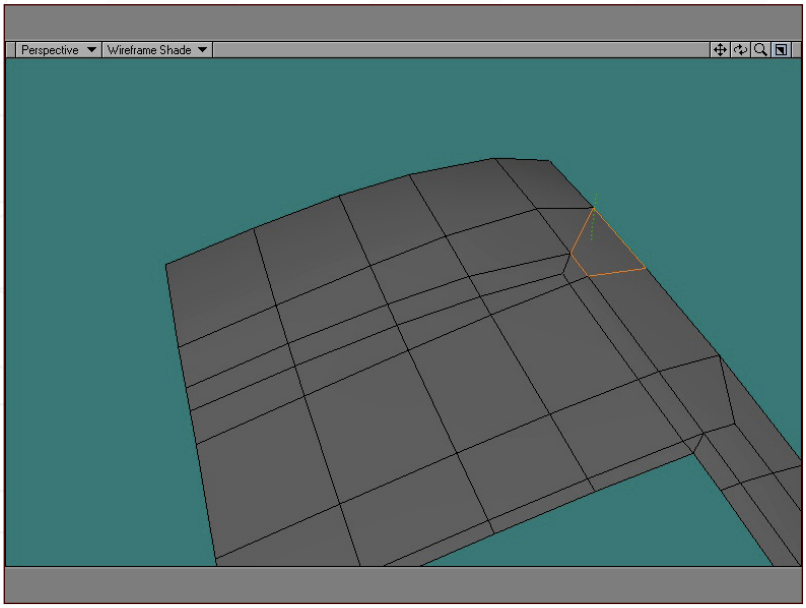


Fig 58

This now gives us the main form for the area where the rear spoiler is located (**Fig58**).

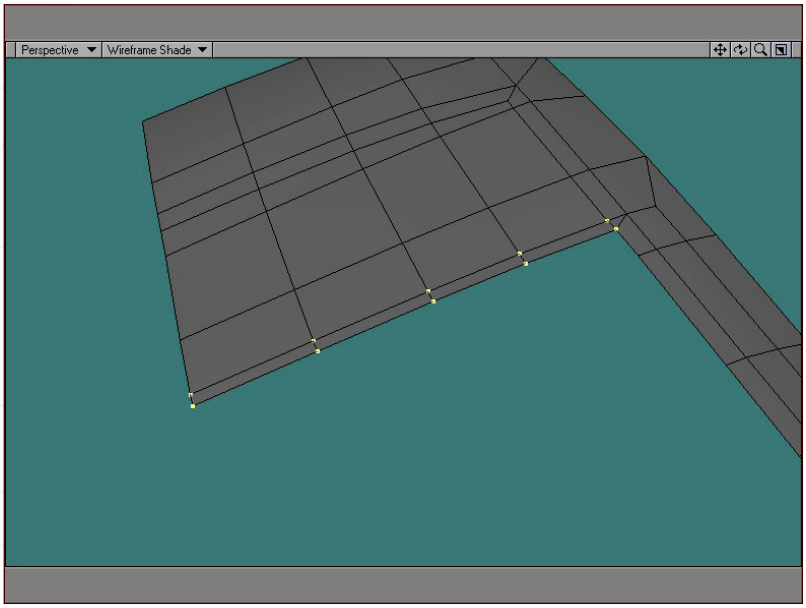


Fig 59

We have two lines of points we now need to weld together. In turn, weld pairs of points together. This will leave a row of two-point polygons, so use the stats panel to select and remove all two-point polygons (**Fig59**).

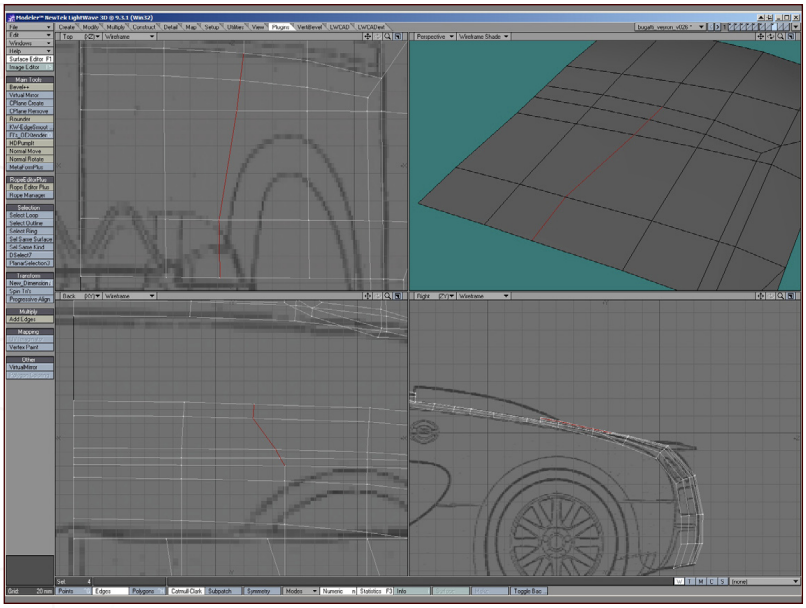


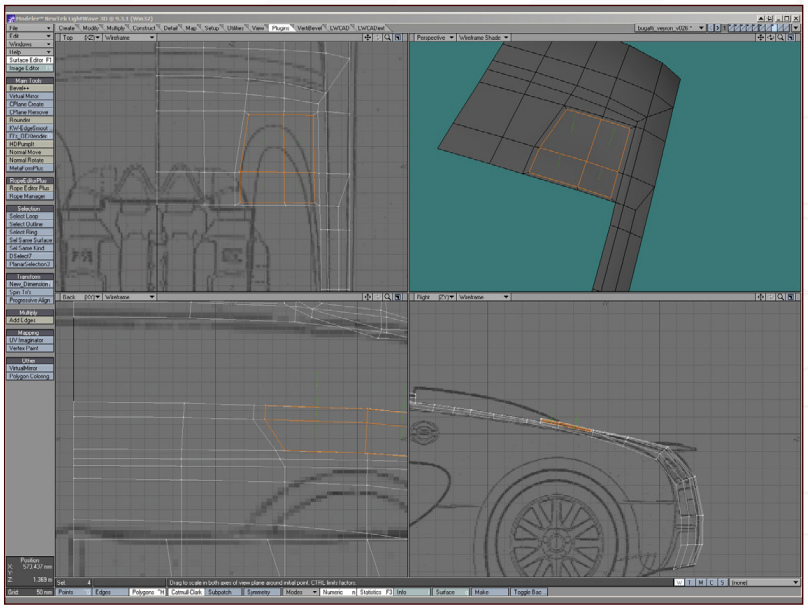
Fig 60

There needs to be room allowed for the tail-end of the intake openings at the rear of the engine bay. Using the Shear Tool, move the front-most edge of the line, shown to the left, bringing it just past the edge of the intake opening in the background image (**Fig60**).

Now select the four polygons which occupy the intake opening area and use Vertibevel to bevel the group in a small amount, as shown.

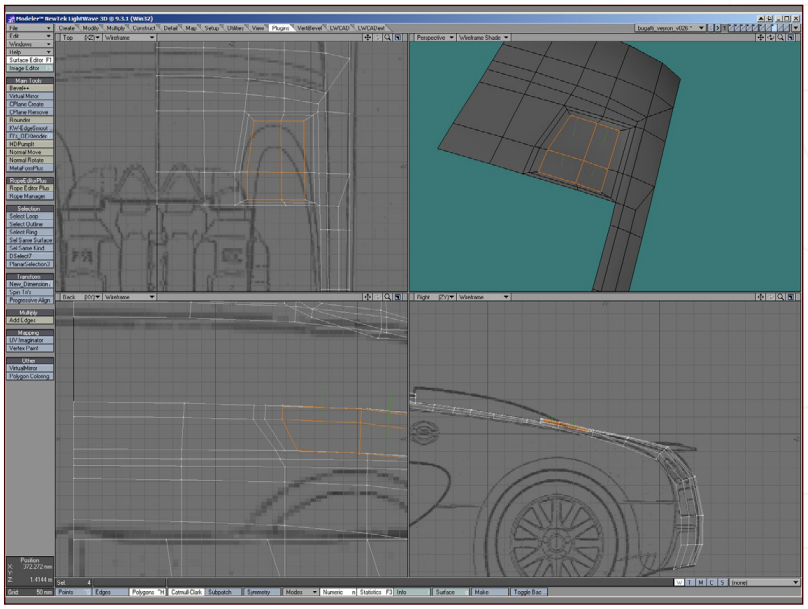
As a work around for those who do not have Vertibevel (buy it: it's the best LW plugin available), with the polygons selected, activate the Smooth-shift tool and, without moving anything, open the numeric requester. With all the values at zero, OK the requester, then scale them down. The end result is very similar to using Vertibevel, but not quite as good (**Fig61**).

Fig 61



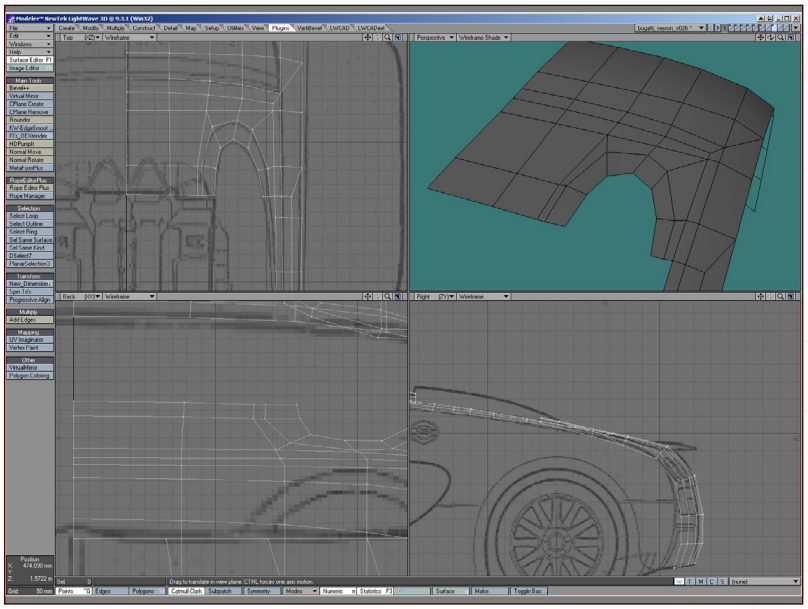
Now repeat the same process again, and you should then be left with the original four polygons surrounded with two complete rows of polygons (**Fig62**).

Fig 62



Now delete the four original polygons and the four new polygons immediately in front of them. Then use the Drag Tool to arrange the remaining polygon's points to follow the profile from the background image (**Fig63**).

Fig 63



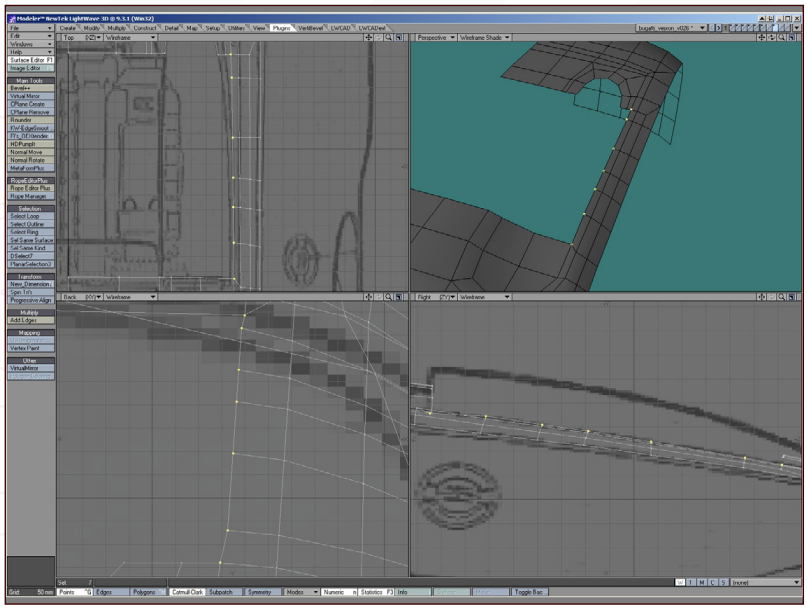


Fig 64

Now select the points along the side edge of the engine bay. Use the Extender tool to create a new row of polygons, extending it to match the first set of polygons at the side of the intake opening. Repeat the process to create a second row to match the remaining row at the intake opening (**Fig64**).

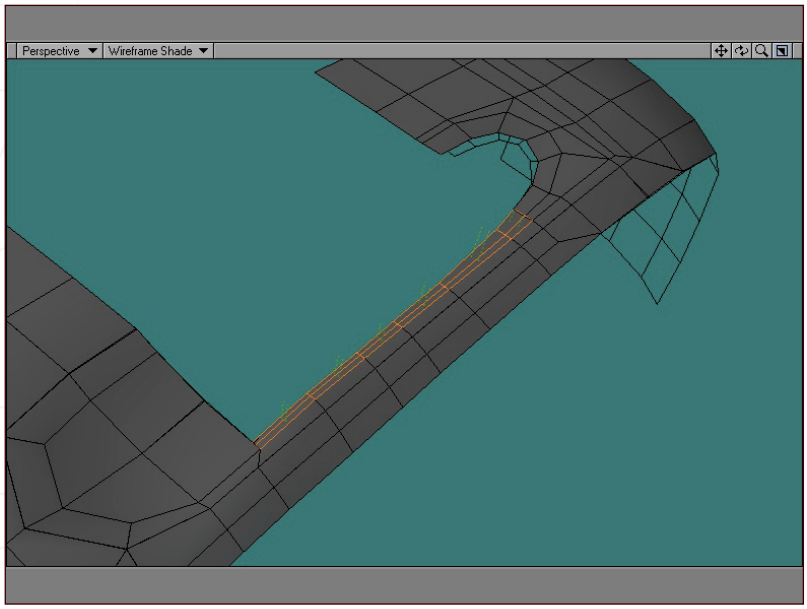


Fig 65

This is what you should have as a result. The points at the rear edge of those newly created polygons need to be welded to the existing polygons. The front edge will be dealt with later on (**Fig65**).

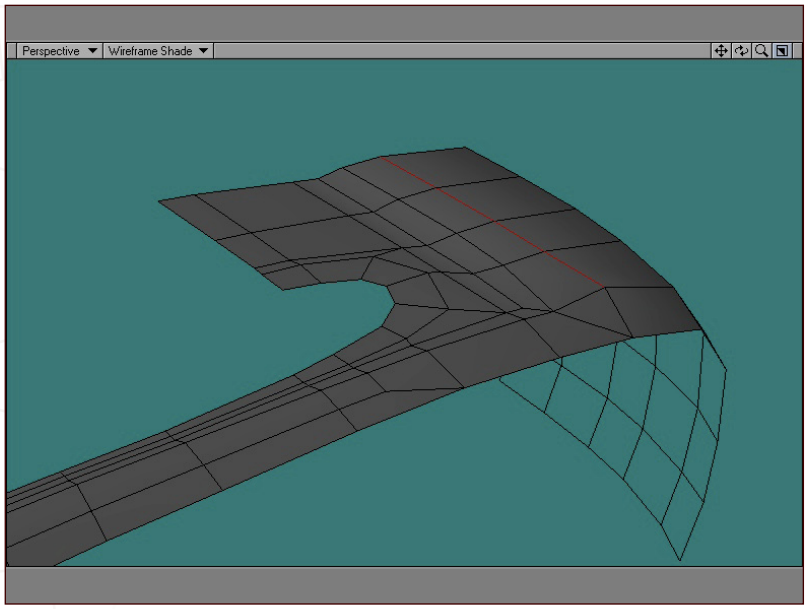
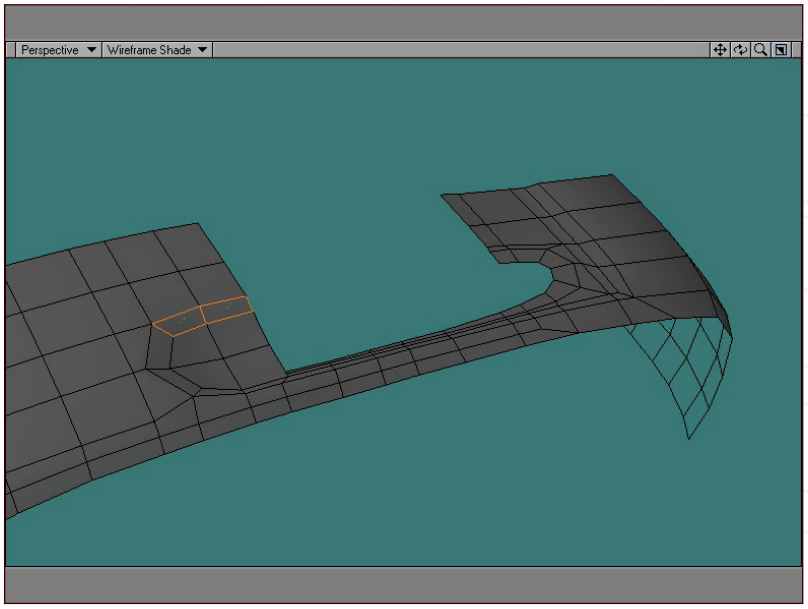


Fig 66

We now have a redundant edge, as shown in the figure. Select each point of the row and weld to the point immediately in front. Once done, you will be left with one diagonal two-point polygons (**Fig66**).

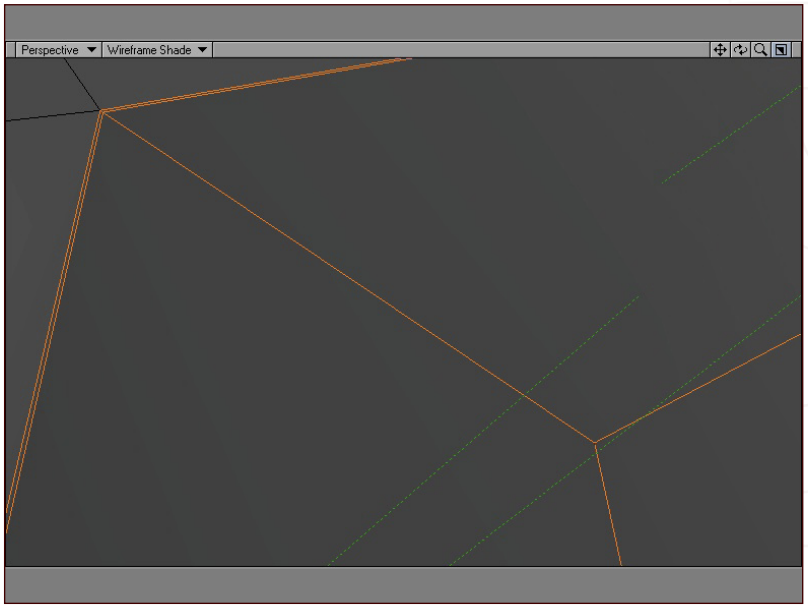
Now select the two polygons forming the main edge of the intake openings, and use the Bandsaw tool to add a very tight run of polygons around the outside edge (**Fig67**).

Fig 67



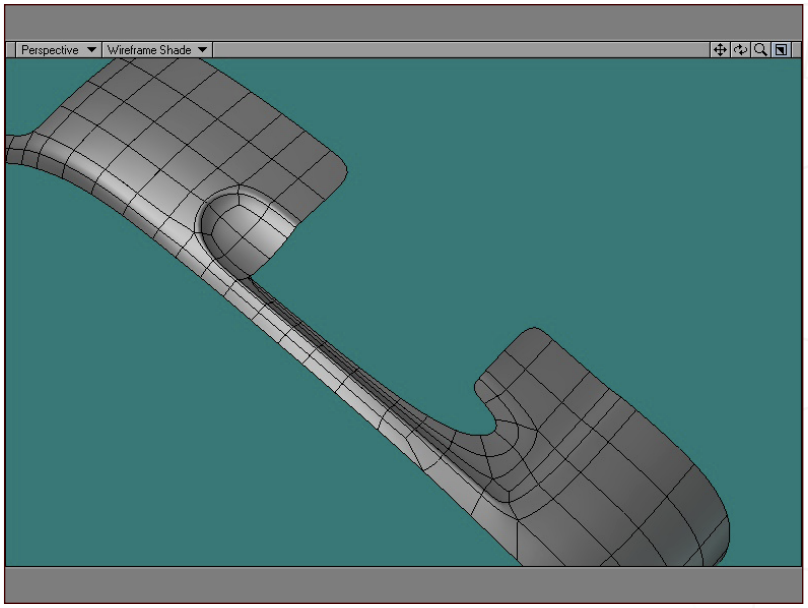
As you can see, the added row of polygons needs to be as narrow as bandsaw can make. I used 0.5% (**Fig68**).

Fig 68



Hit Tab to toggle subpatch mode on, and you should get something very similar to this (**Fig69**).

Fig 69



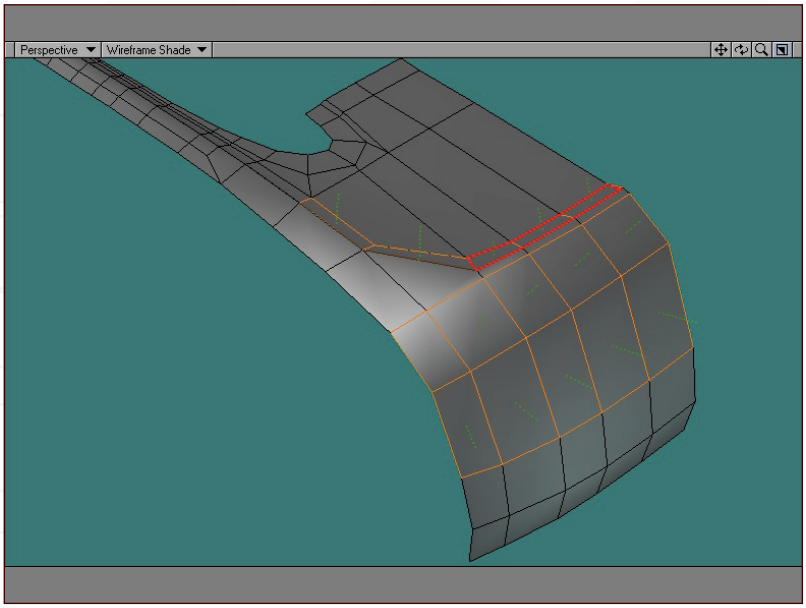


Fig 70

Select the polygons shown and move them backwards, following the profile in the background image. This is to create the rounded rear edge of the rear wing (**Fig70**).

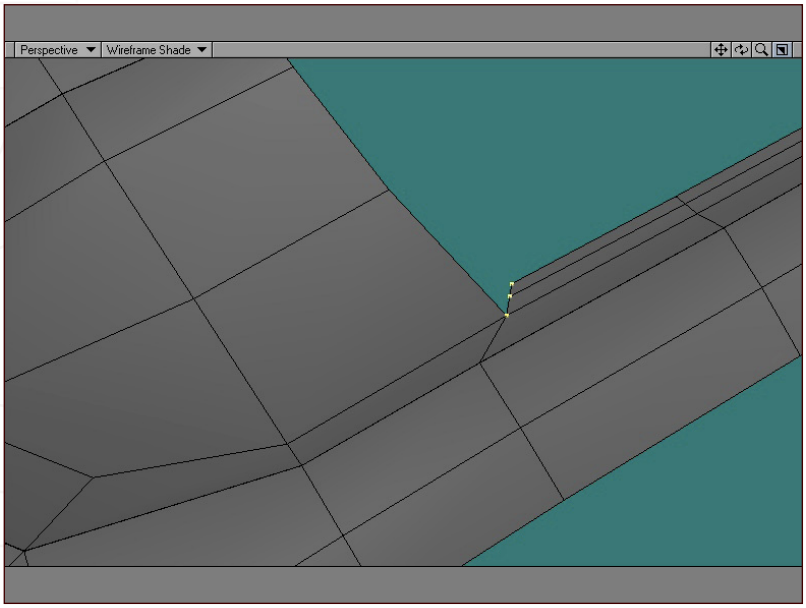


Fig 71

Select the three points that form the front edge of the side polygons, and use the Shear tool to slide them backwards to approximately 45 degrees (**Fig71**).

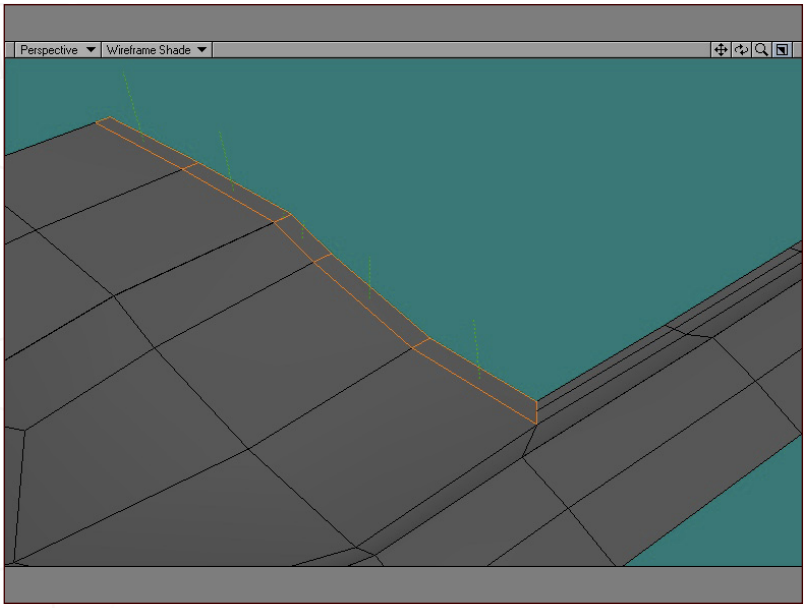
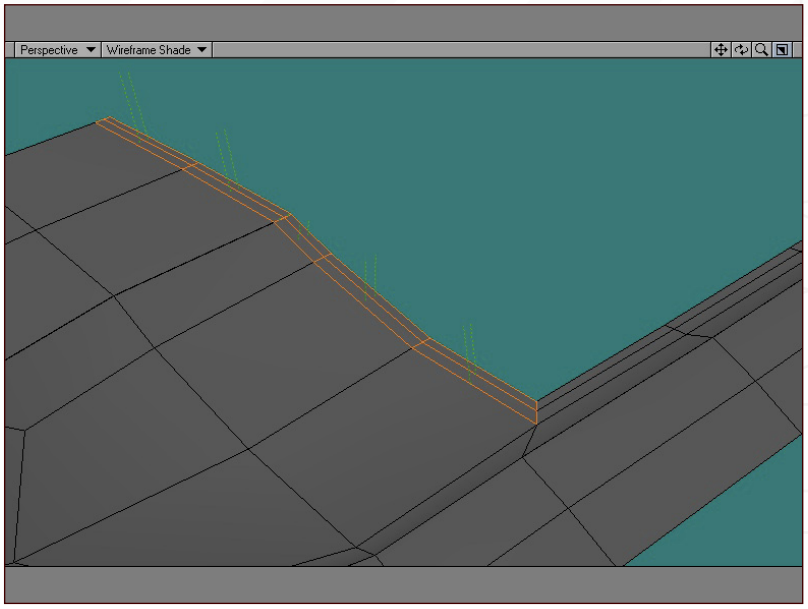


Fig 72

Now select the points along the front edge of the engine bay and use the Extender Tool to add a row of polygons. Extend it far enough to align with the inner point of the side polygons. Select the inner point of the new polygons and select the inner point of the side polygons, then weld the former to the latter (**Fig72**).

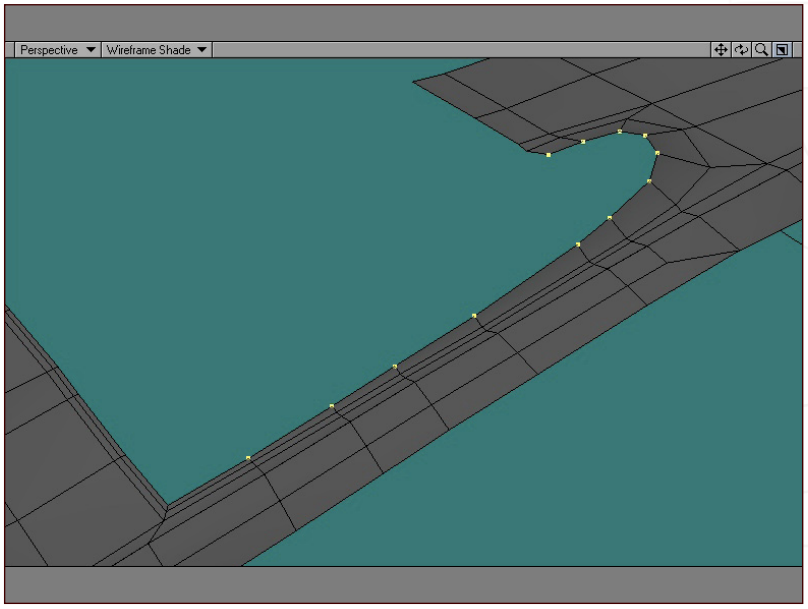
Now use the Bandsaw tool to add a cut, corresponding to the polygons along the side. When done, weld the points in the centre-line join (**Fig73**).

Fig 73



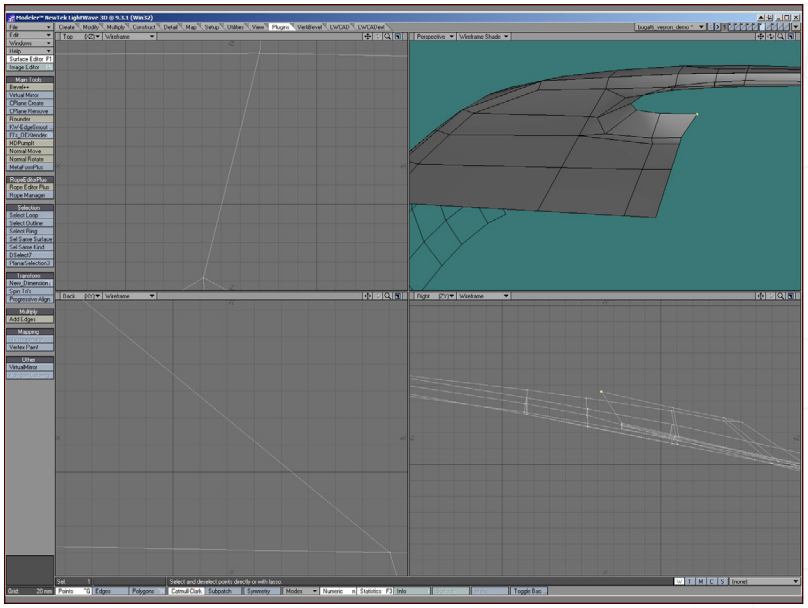
Now select the points shown; basically one from the front end, all the way around the curve and to the end. Use the Shear tool to lift the points at the rear, pivoted via the front-most point. I always find the Shear tool defaults to operate in the opposite direction to that which I actually want! (**Fig74**)

Fig 74



Select the point at the inside end of the curve, as shown, and move the point forwards to create a slope of around 45 degrees. This will create a suitable edge to extend down into the engine bay to make the front face (**Fig75**).

Fig 75



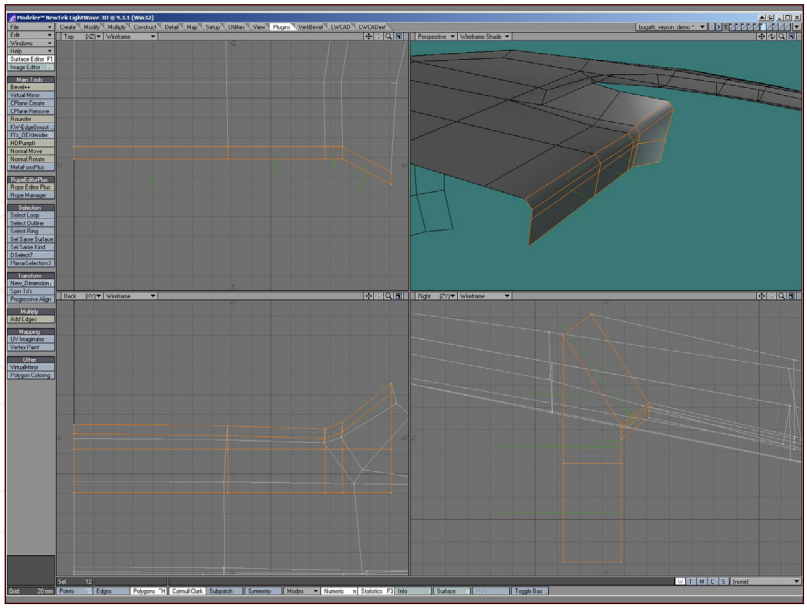


Fig 76

Now, with the points selected across the whole back edge of the engine bay, use the Extender tool and move the points forwards and down a short distance. Then use the Extender tool again and move the points down (but not forward this time) (**Fig76**).

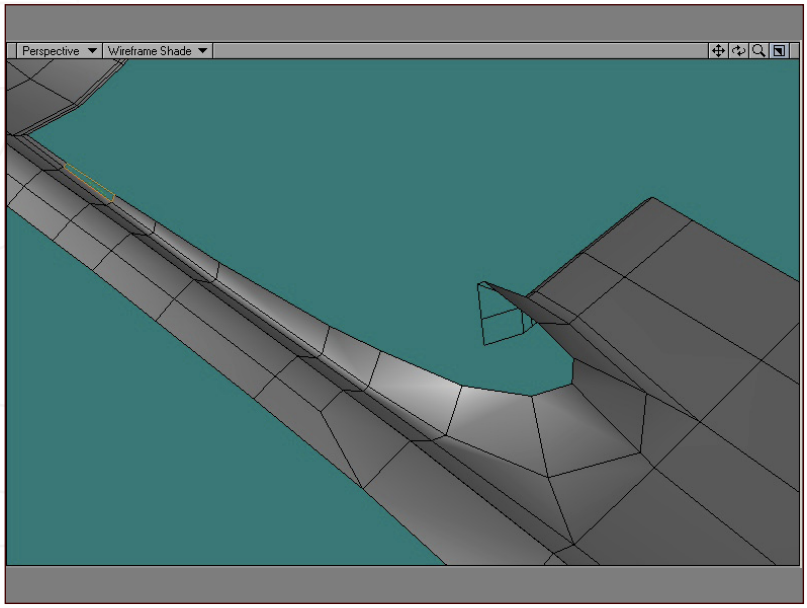


Fig 77

We need to get some control over the row of polygons form the intake cowl, so to begin with, select the polygon, as shown, and flip it. The purpose of this is to control how far along a row of polygons the Bandsaw tool may travel. As soon as a flipped polygon is encountered, it is stopped (**Fig77**).

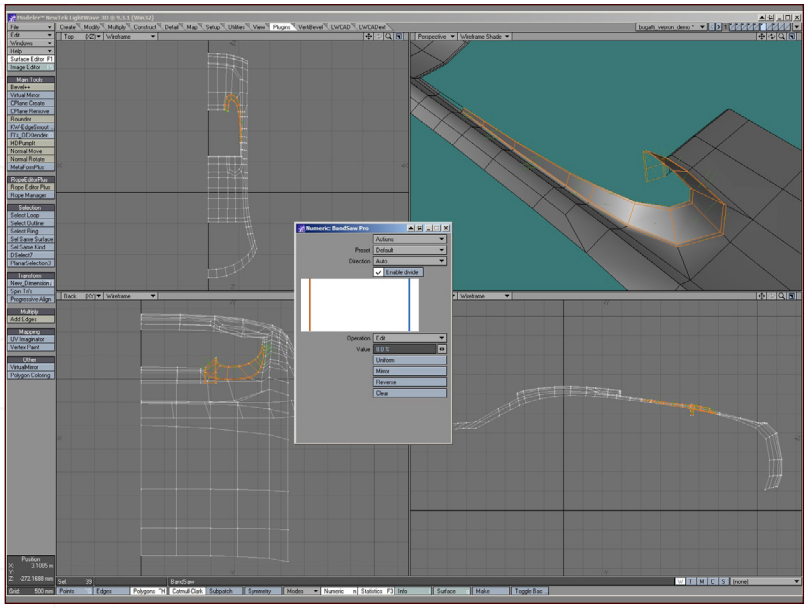
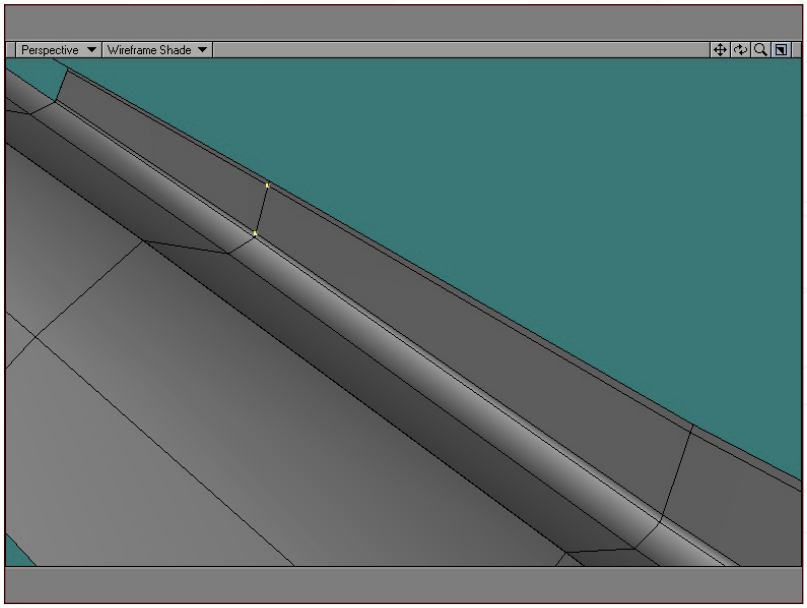


Fig 78

Now use the Bandsaw tool, with the settings shown, and cut in thin rows of polygons – top and bottom. The flipped polygons will stop the Bandsaw from running further than we need. This will keep the raised cowl well-defined (**Fig78**).

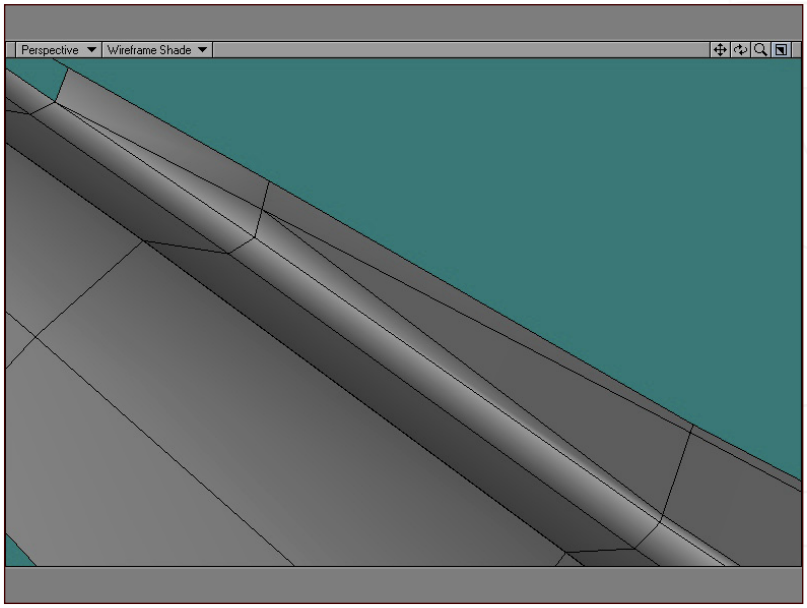
Now select the two inner points, one set back from the flipped polygons (**Fig79**).

Fig 79



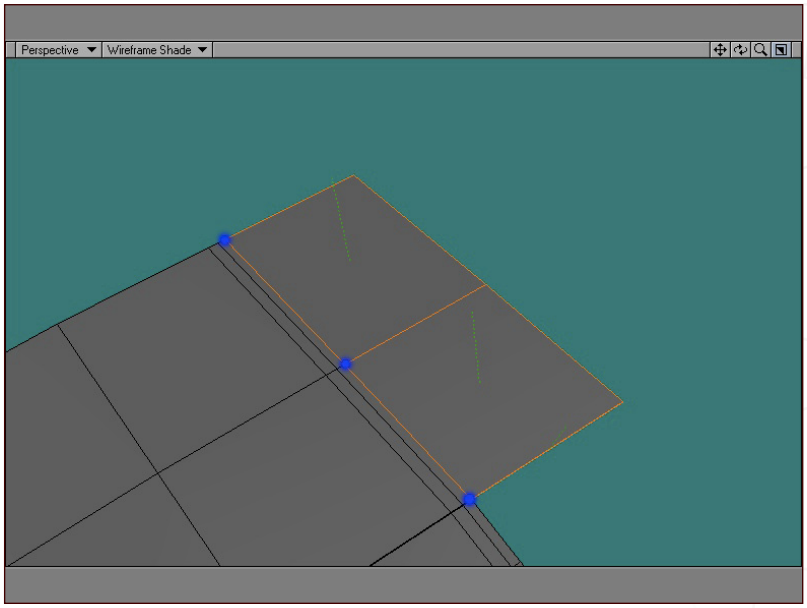
Weld these points together. This is basically disposing of some rows of geometry as it runs up towards the front of the engine bay. Once you have done that, re-select the flipped polygon and flip it back again (**Fig80**).

Fig 80



Now we move to the front of the engine bay. Select the four points, as marked in blue (it looks like three, but the right-hand end has two points very close together), and then use the Extender tool to drag them out, as shown (**Fig81**).

Fig 81



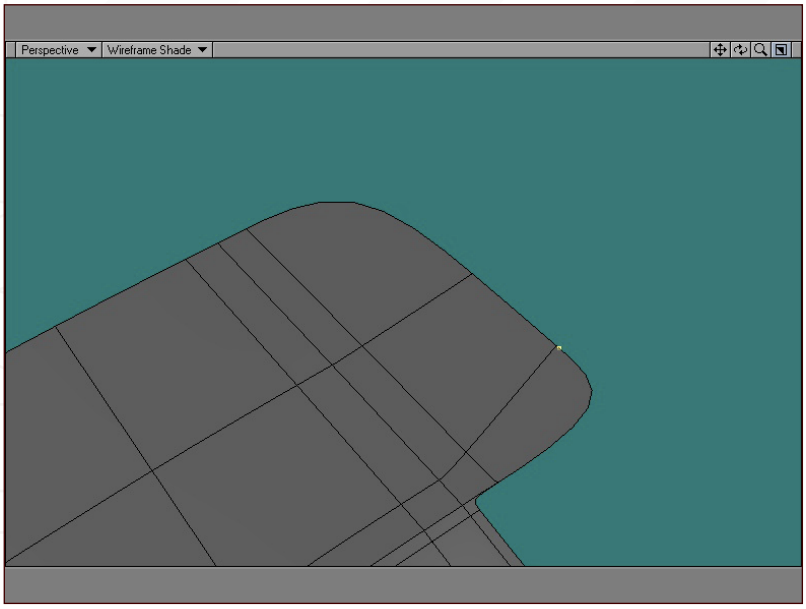


Fig 82

Select the second point in, as shown, and move the point sideways some. The purpose of this, as you can see, is to allow a rounded corner to form (**Fig82**).

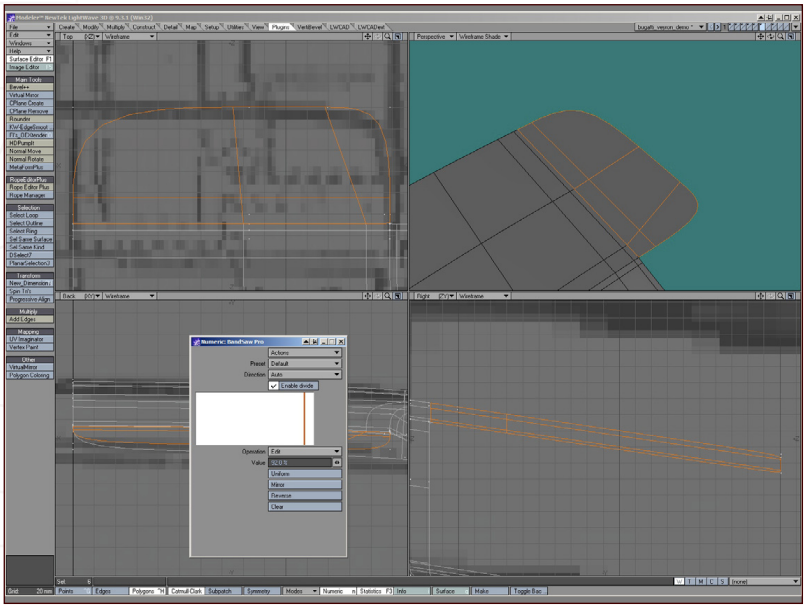


Fig 83

Now repeat the process with the Bandsaw tool, and place a very thin cut at the roof end of the polygons that we created previously (**Fig83**).

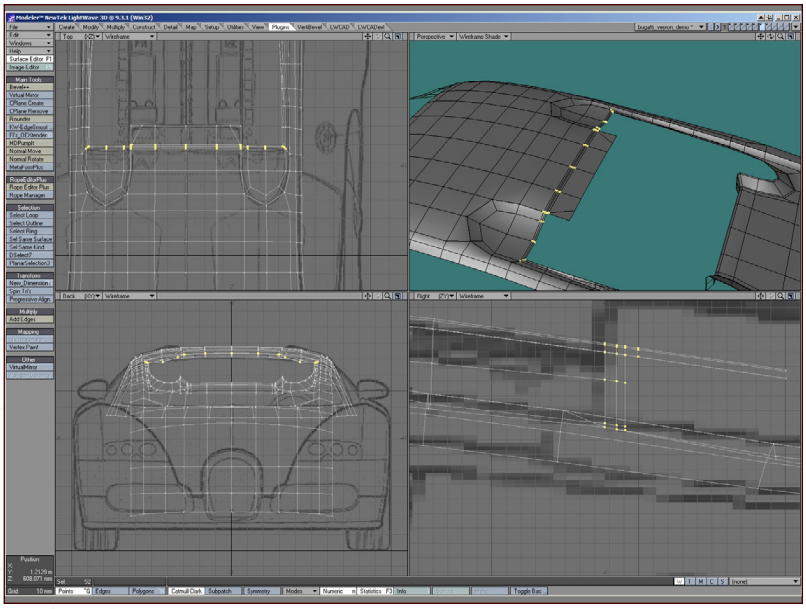


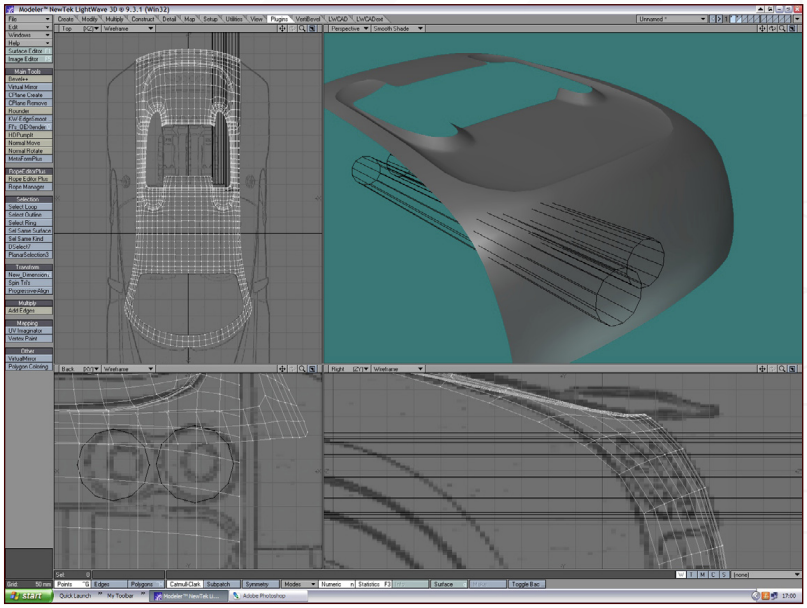
Fig 84

Add one final cut across the width of the polygons to reinforce the tight corners between the roof and the sun-visor (**Fig84**).

The last part for this instalment is the rear grille and light openings. The rear lights are cylindrical inserts, which can be a pain to cut into curved surfaces. I favour the path of least resistance and, as such, in this instance, I am opting for freezing the geometry for the centre panel. This will give denser polygons to cut into. As long as we match the geometry density as closely as possible for as much of the model as possible, then we can simply use lower subdivision so as to not give us excess polygons at render time.

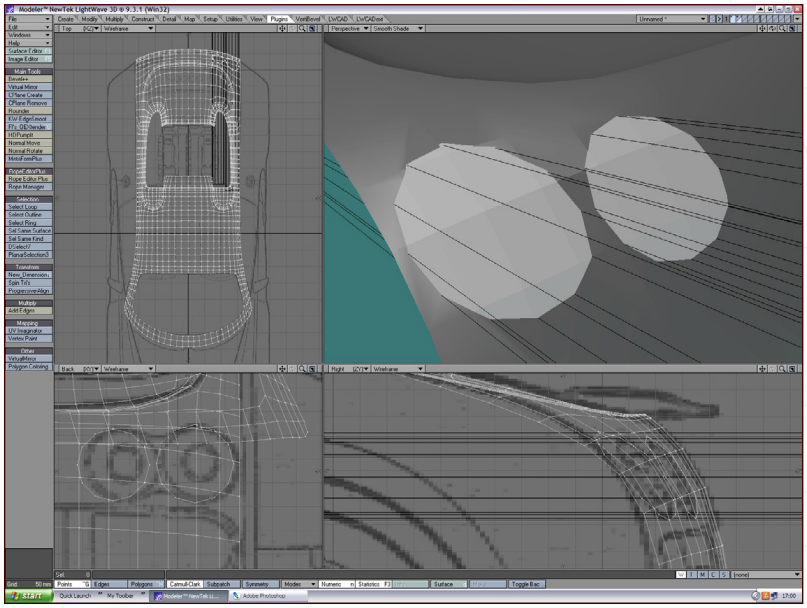
To start, create two cylinders roughly in line with the background image. I've used twelve sides for these (**Fig85**).

Fig 85



Use the Stencil tool with the cylinders in the background layer. Once the stencil is complete, you'll notice that the newly stencilled polygons are extremely untidy. This is owing to LightWave's Stencil/Boolean operation are not very good and almost always leave a lot of tidying up to do (**Fig86**).

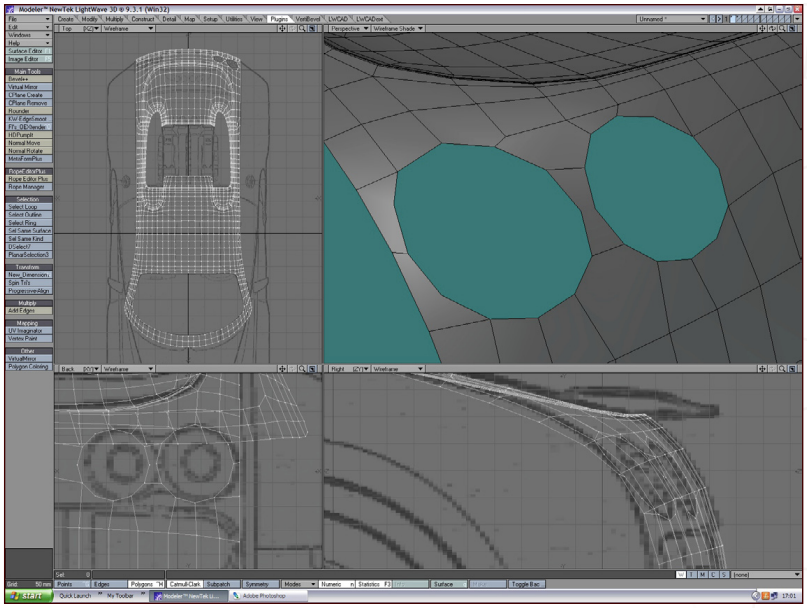
Fig 86



To tidy up, look at the surplus points that have been created around the circular stencil, then proceed to weld the points to the nearest corner points of the circles.

You should get something like this. The stencilled outlines are now clean, though we can still tidy the surrounding geometry somewhat (**Fig87**).

Fig 87



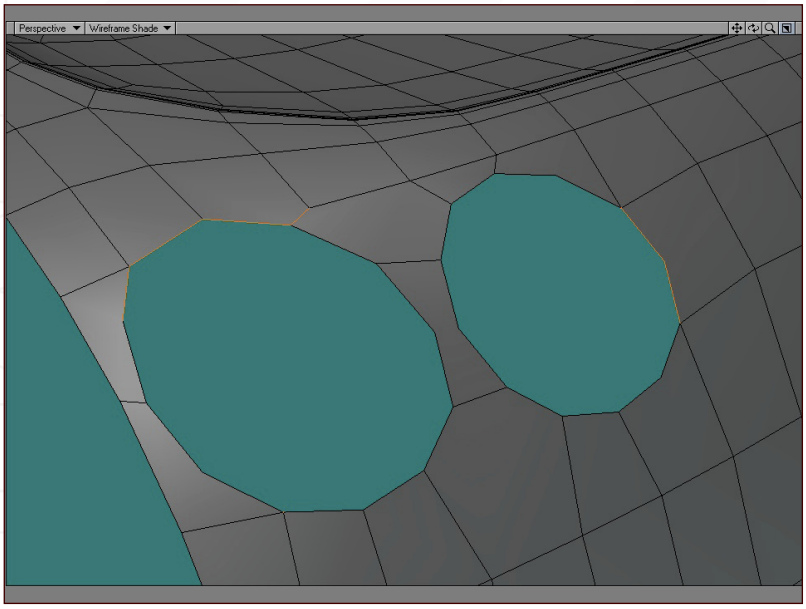


Fig 88

One thing you will find often is that, when welding up points in excess geometry, the side effect creation of one- and two-point polygons. Highlighted here, they need to be checked for and deleted... often!

With Sub Patch mode you'll easily see them, but with CC SubD's, you'll simply get unpredictable subdivision, which on occasions can make it hard to realise the cause (**Fig88**).

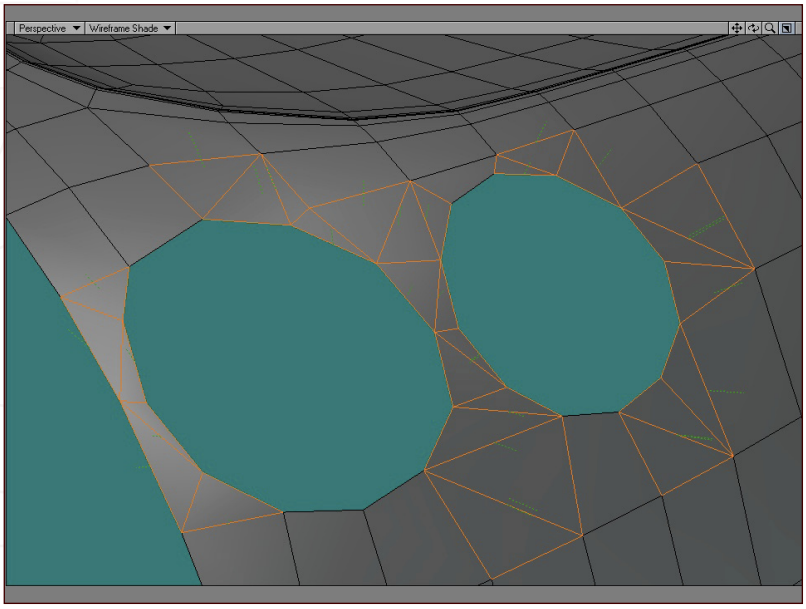


Fig 89

Triple the polygons with more than four sides. We can then re-merge selected triangles to form a better layout of quad polygons for subdividing (**Fig89**).

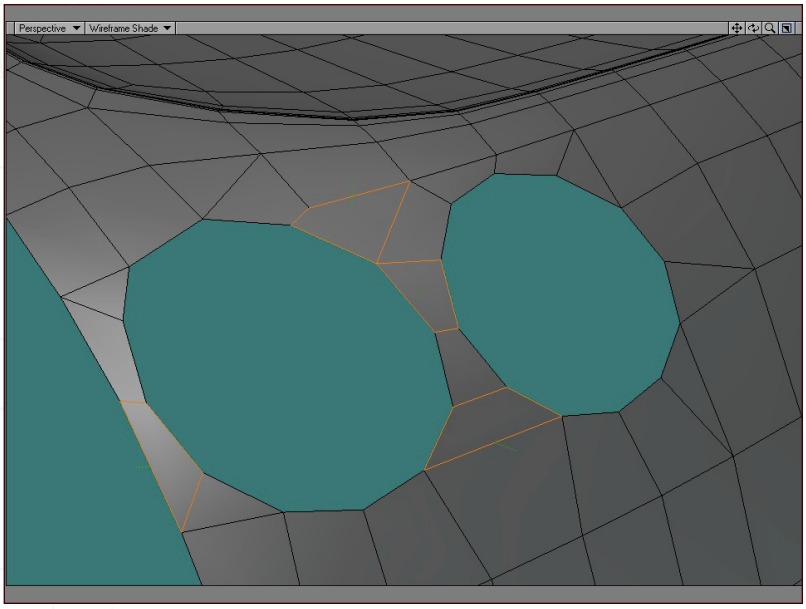
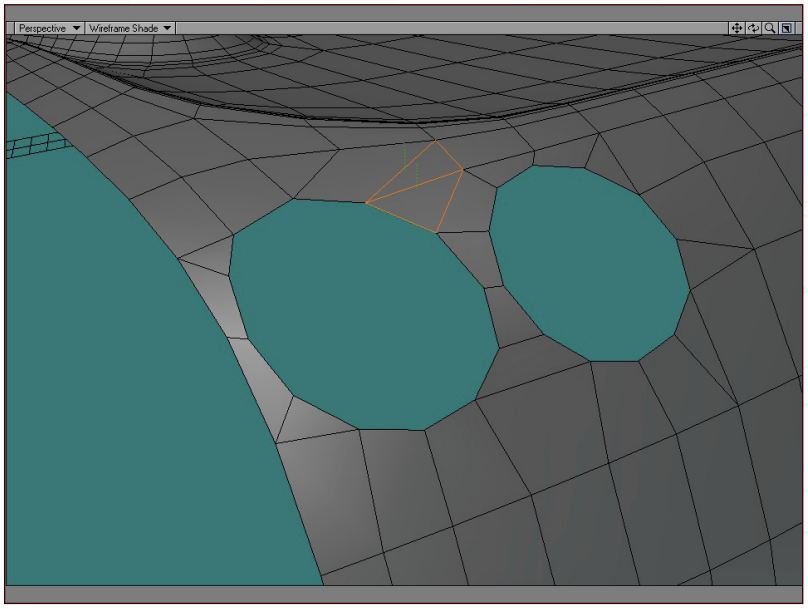


Fig 90

After a little welding and merging, this is something along the lines of what you'll have left. If your choices of welding and merging differ slightly, it's all good, as long as you can get a smooth result when subdividing (**Fig90**).

Sometimes you'll come back to your work and you'll see alternative options that did not stand out before. Don't worry about it! I find this happens quite often. As such, another quick weld-up has been spotted after the last batch. In this case, I had three quads which I have welded up and resolved down to two quads (**Fig91**).

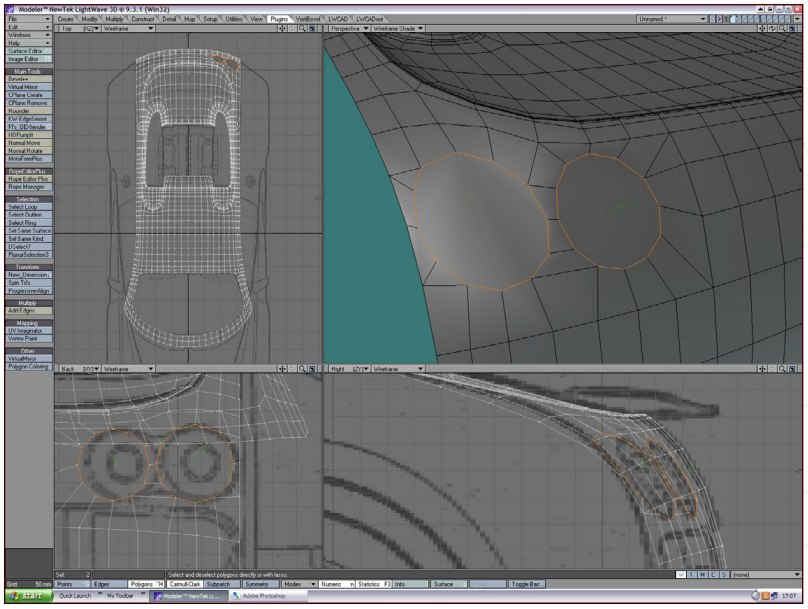
Fig 91



Now select the points around each hole in turn – and in sequence – and make a poly in each one.

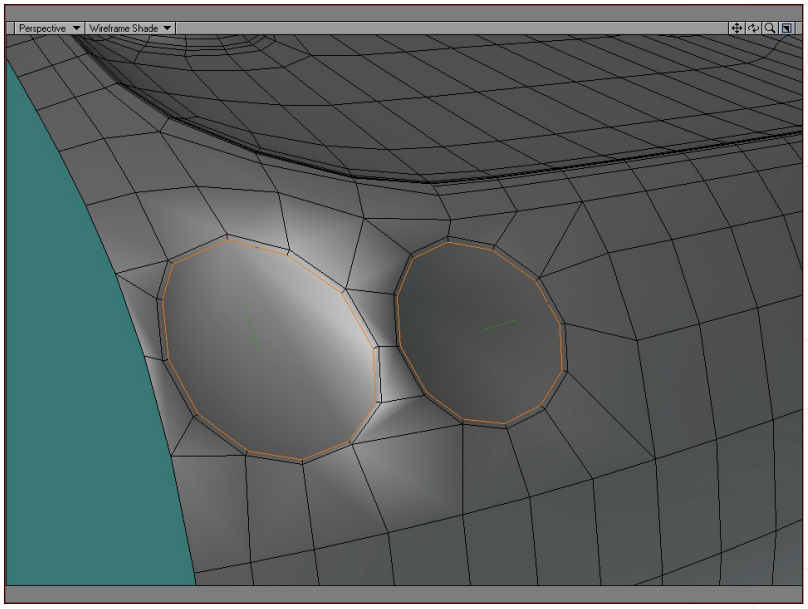
In the following two plates, you will see we need to use first the Bevel Tool (**Fig92**).

Fig 92



Apply a small bevel inwards and backwards, very slightly. With the two circular polygons still selected, follow this up with a zero offset Smoothshift operation, then move the polygons backwards an amount similar to that of the bevel previously applied (**Fig93**).

Fig 93



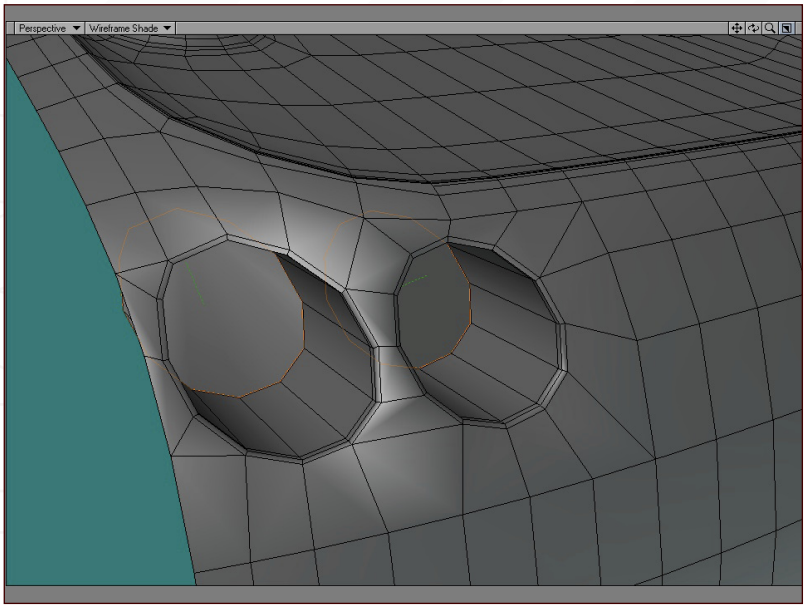


Fig 94

Now repeat the zero offset Smoothshift and move the circular polygons back a good distance. For now, we are pretty much set for the rear light insets. Next up, the rear grille openings (**Fig94**).

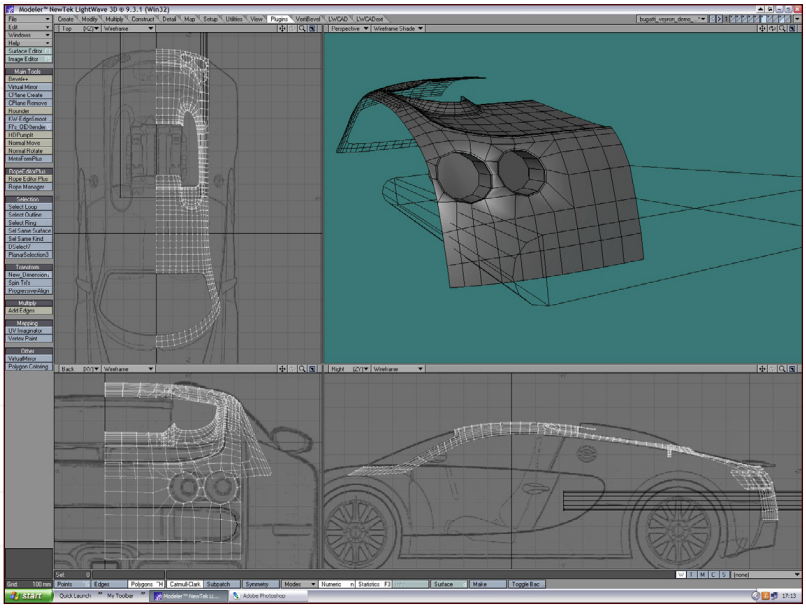


Fig 95

I've started off by creating a twelve-sided cylinder to match one end of the opening. Then I have selected the six-sided polygons of one half and merged them. Then the excess points for those polygons are deleted. You are then left with a half cylinder. Mirror across the X-axis and, with the opposite facing two polygons, apply a zero offset Smoothshift and set the value with the Set Value tool to zero in the X axis. Merge points and delete the two polygons. Select any two adjoined polygons either side of X and Bandglue together (**Fig95**).

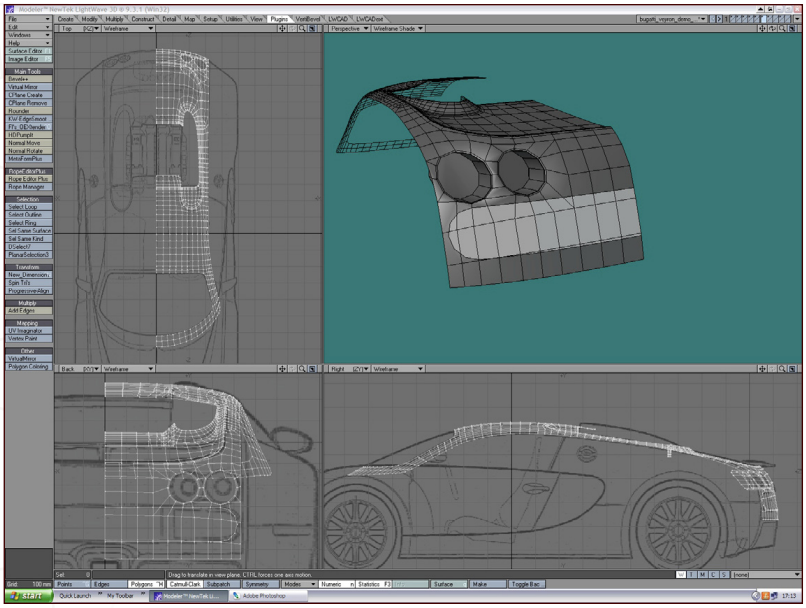
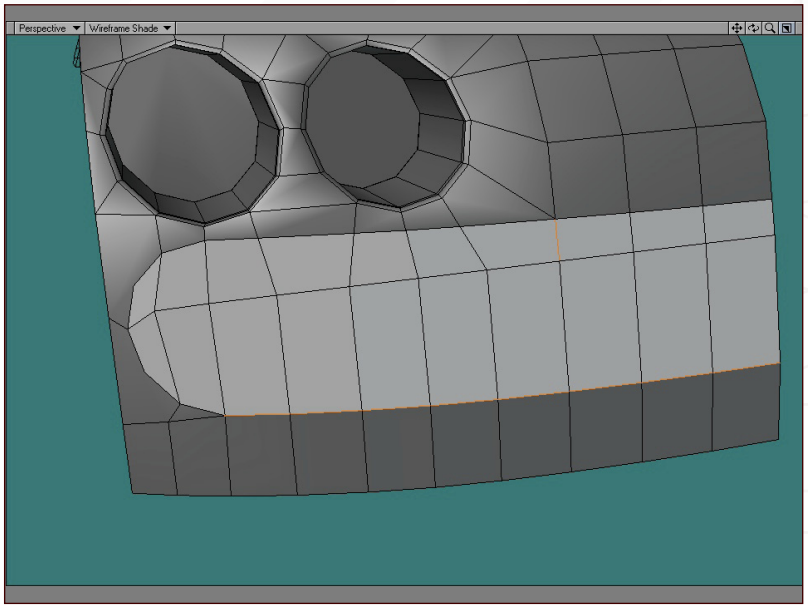


Fig 96

This should leave you with the full width opening stencil, so now use the solid drill tool to stencil the opening into the back of the main panel (**Fig96**).

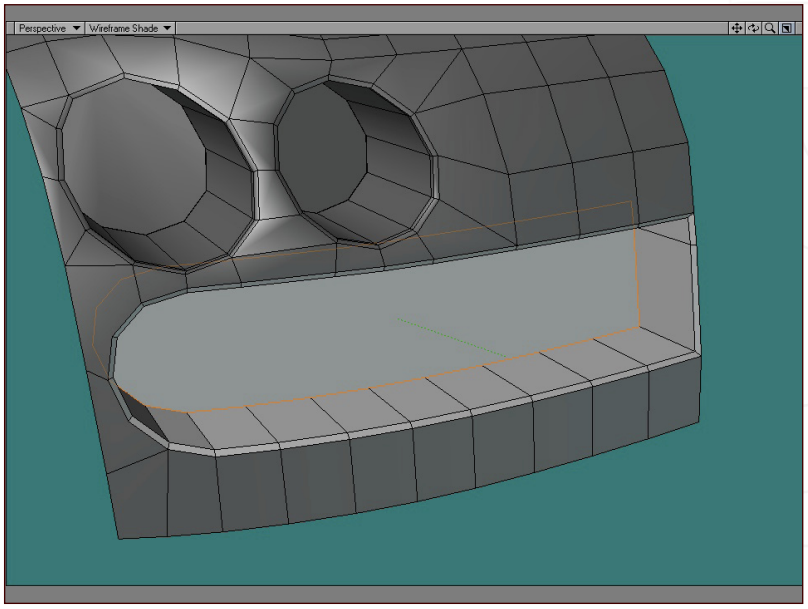
Now, along the bottom, weld the very close proximity points of the original geometry to the nearest points of the stencilled outline. You can see the area to be welded by the highlighted row of two pointers (**Fig97**).

Fig 97



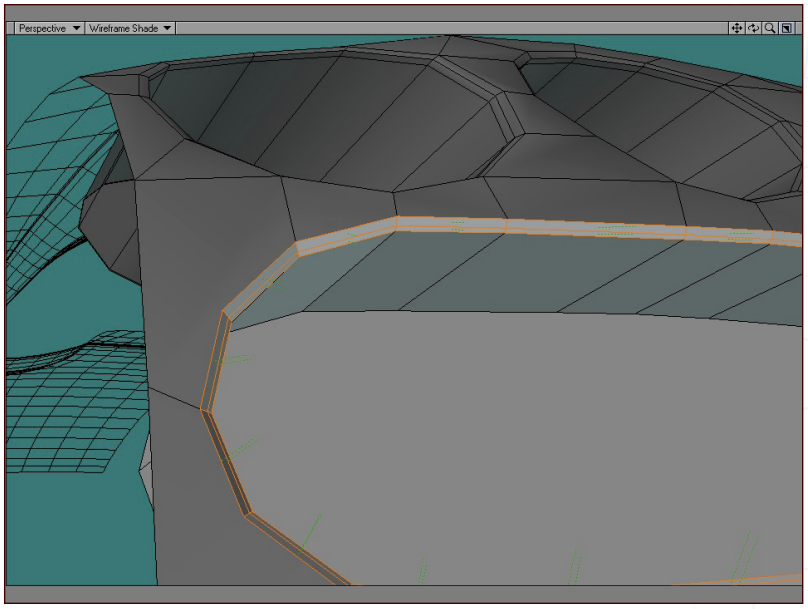
Merge the polygons of the stencilled outline and then use the bevel tool to apply a slight inset and backwards bevel. Then use a zero offset Smoothshift operation and move the polygon backwards a good distance (**Fig98**).

Fig 98



Add a Bandsaw cut around the newly created edge bevel, approximately 65% toward the inside edge (**Fig99**).

Fig 99



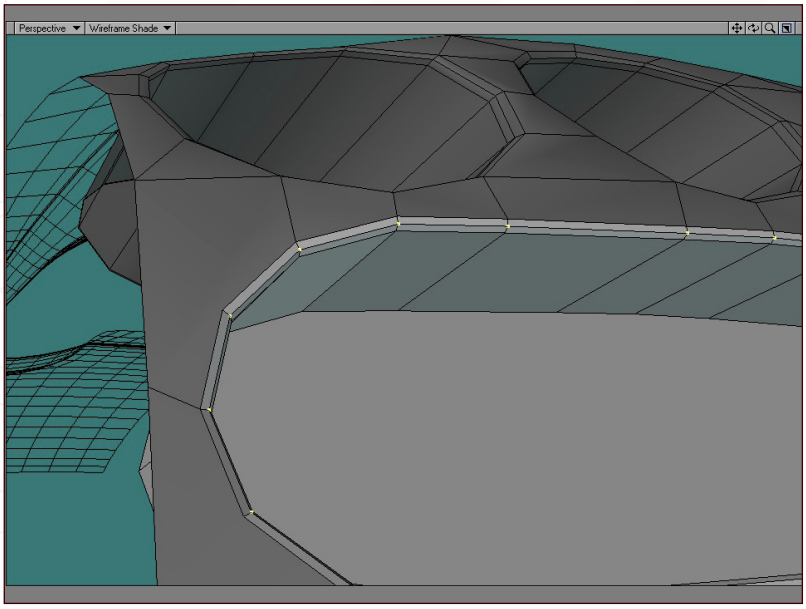


Fig 100

Switch straight to points mode and, with the points of the new cut still active, move the points outwards so as to create a profile of a smooth curve. It can only be so smooth with a three-point profile, but it will provide a notably smoother curve when subdivided (**Fig100**).

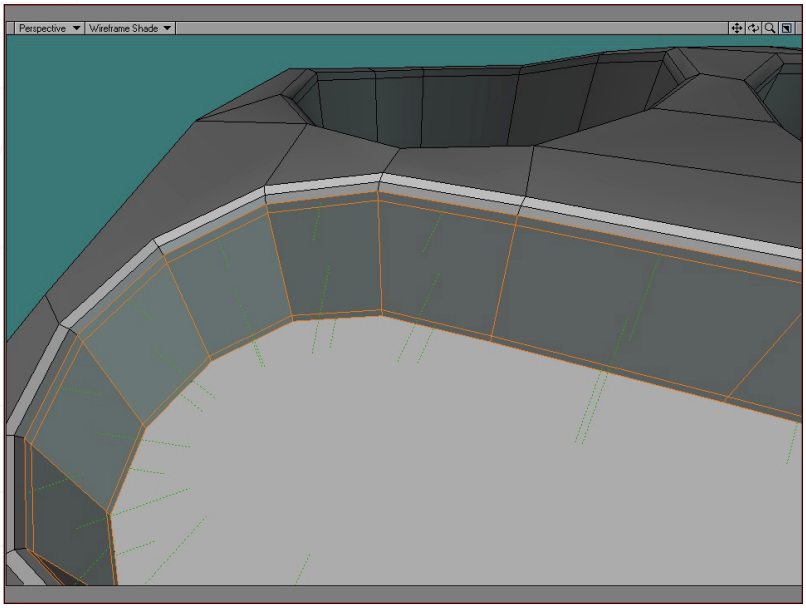


Fig 101

Add a symmetrical Bandsaw cut around the inside profile of our rear vent opening, as shown, which again will just reinforce the control of the shape when subdivided. At the centre line of the rear opening, select all the polygons created by our rear vent opening actions and use the Set Value tool to set a zero value in the X-axis. Now the polygons are flattened to the very centre, delete them (**Fig101**).

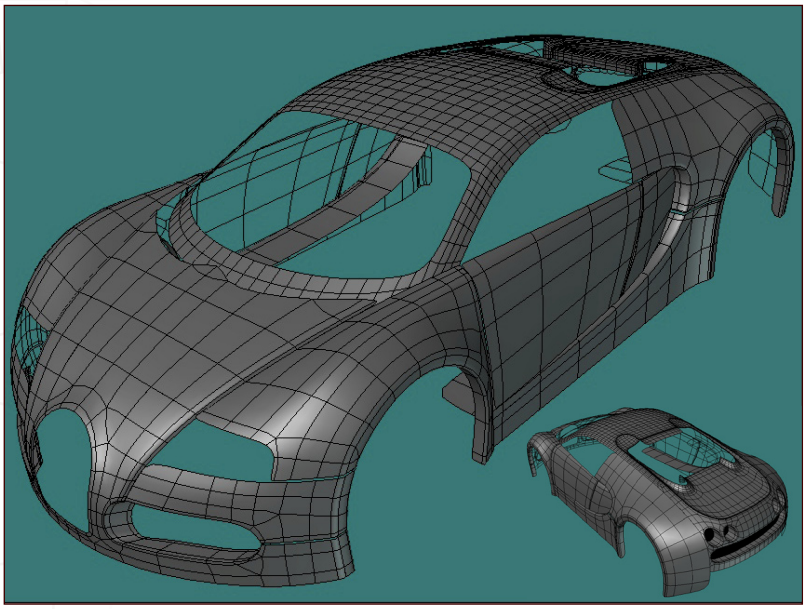


Fig 102

When done, you should be left with the main shell looking like this, or at least very similar (**Fig102**).

BUGATTI VEYRON: PART 2

Tutorial by:
CRAIG A CLARK

For more from this artist visit:
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low poly game character

Downloadable Tutorial EBook

Introduction:

The original character of the Swordmaster was created by Seong-wha Jeong and we had 3DTotal's in-house 3d artist Richard Tilbury, re-create the character in 3dsmax as well as create the textures in Photoshop, in our new precise, step-by-step tutorial for highly polished, low polygon game character with detailed texturing for real-time rendering. We have also converted the tutorials into Cinema 4D, Maya, Lightwave and Softimage platforms. Even if you are not a user of one of them, the principles should be easily followed in nearly all other 3D applications.

The Swordmaster tutorials is spread over 8 Chapters which outline, in detail, the process for creating the Swordmaster below are the details.





Chapter 1: Modelling the Head
Chapter 2: Modelling the Torso
Chapter 3: Modelling the Arms & Legs
Chapter 4: Modelling the Clothing & Hair
Chapter 5: Modelling the Armour
Chapter 6: Mapping & Unwrapping
Chapter 7: Texturing the Skin & Body
Chapter 8: Texturing the Armour & Clothing

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Bugatti Veyron
car modelling series

The series will cover an in-depth and comprehensive guide to modelling the amazing Bugatti Veyron car, from start to finish, and will focus on the key techniques and stages involved in building the chassis, as well as details such as the windows, lights, vents, petrol caps, engine parts and so on. We will then move on to creating the wheels, including tyres and hubcaps, before going on to building and incorporating an interior, namely the dashboard and seating. The series will proceed with a section on creating and applying materials for the numerous parts of the car, such as the paint work, chrome, rubber and glass, before concluding with a tutorial devoted to setting the scene for a finished render. The final part will cover the importance of a good lighting rig and light parameters, as well as the importance of a camera and the integral part that the rendering settings play in showcasing the model for a portfolio.

This series aims to show a comprehensive guide to creating a finished car for people new to this type of exercise, but is not suitable for beginners who are not familiar with using 3D software. The tutorials do not detail every single step of adding individual edge loops and vertices, but does endeavour to outline each important stage and explain the crucial techniques necessary to following the exercise.

The schedule is as follows:

Issue 029 January 2008
MODELLING THE CHASSIS - BASICS

Issue 030 February 2008
MODELLING THE CHASSIS - DETAILS

Issue 031 March 2008
LIGHTS, RADIATOR GRILL & VENTS

Issue 032 April 2008
WHEELS, TYRES & RIMS

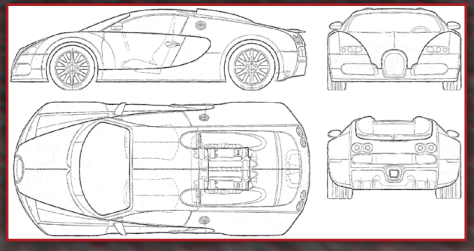
Issue 033 May 2008
INTERIOR

Issue 034 June 2008
THE MATERIALS & FINISHES

Issue 035 July 2008
LIGHTING SET UP & RENDER

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Modelling the Chassis Part 2 - Details

Welcome to the second part of this car modelling tutorial series. I hope that you have all managed to follow along with the first part alright and are ready for this next instalment. The goal in this part is to finish up the initial car geometry and then to give each and every piece some depth, because otherwise everything would look wafer thin. This will be achieved using extrudes and bevels. We will also be adding a smooth modifier to each piece so that the car doesn't look faceted. Anyway, enough talking, let's begin!

The first thing I recommend doing is deleting the history on all of the car parts modelled so far. This is because we have done a lot of cutting and shaping of the various parts which leads to a lot of history being accumulated. Deleting the history means that Maya isn't calculating so many things within the scene and will not get bogged down when trying to model.

We will begin by creating the side panel with the big air intake. Take the two edges of the front fender, at the bottom of the wheel arch, and extrude downwards (**Fig01**).

Snap these new verts to the curves that make up the side panel and extract the new faces so that you have two separate meshes (**Fig02**).

Make some extra cuts and shape to follow the contours of the car (follow the blueprint and your reference images). The highlighted edges have been tugged outwards slightly to create some subtle curvature (**Fig03**).

Fig 01

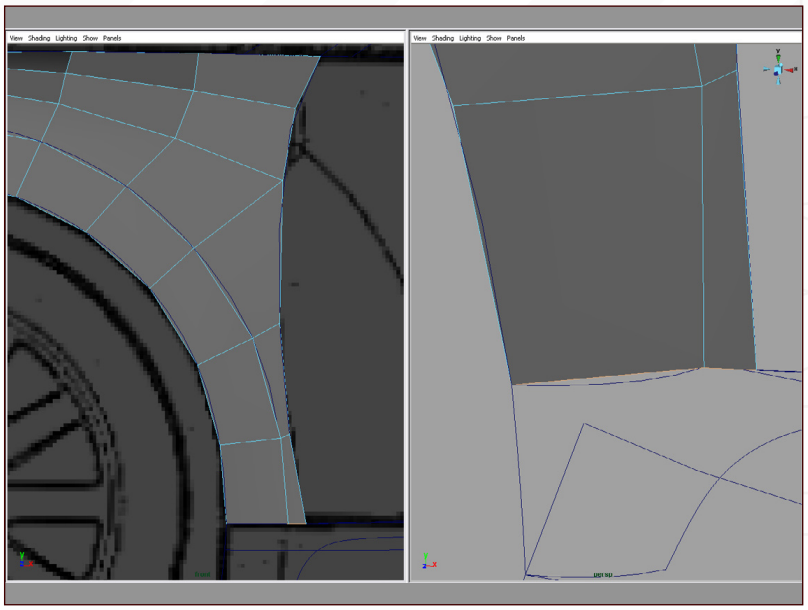


Fig 02

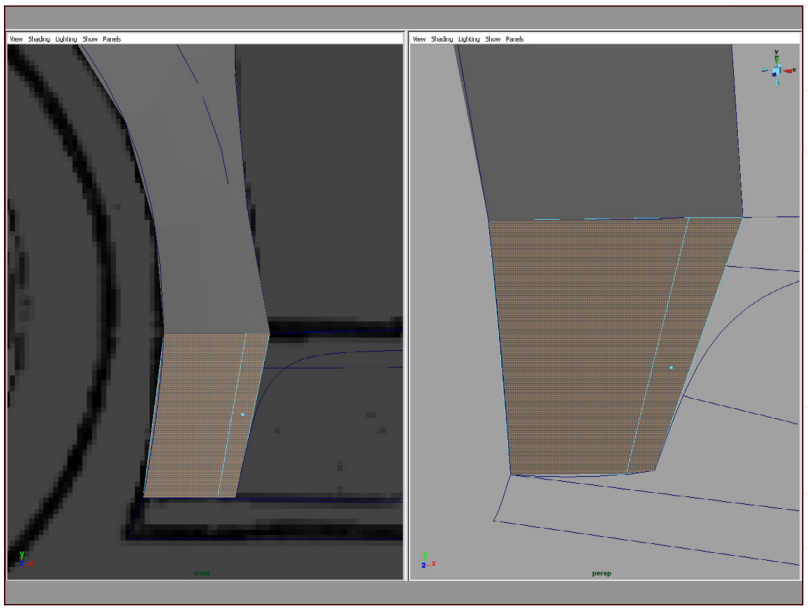
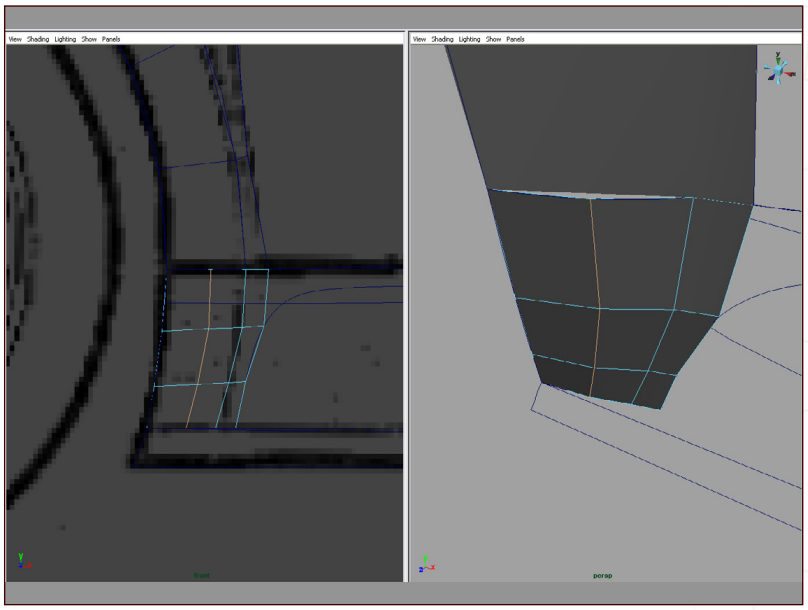


Fig 03



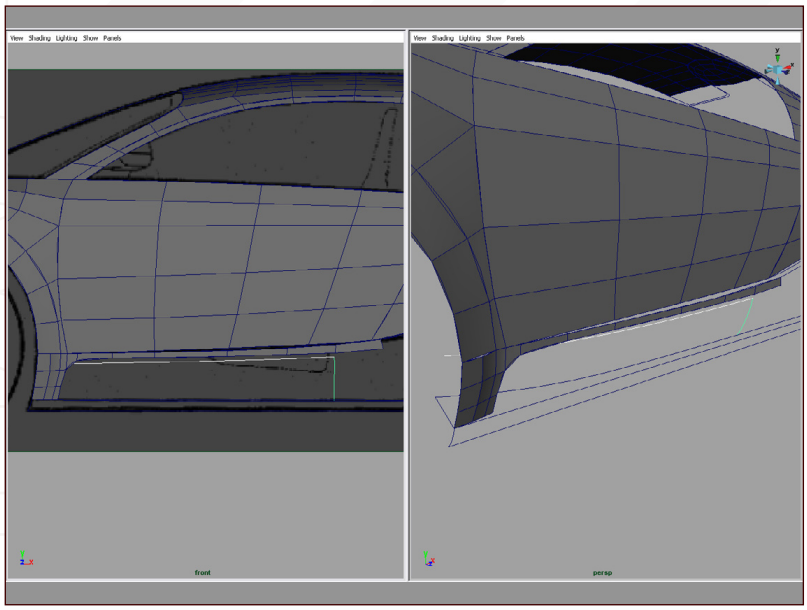


Fig 04

Continue to extrude towards the rear wheel, snapping to your guide curves and shaping as you go (**Fig04**). Make sure that you keep this side panel slightly away from the door mesh. **Note:** the two highlighted curves were slightly misplaced when I created the curve network. This happens!

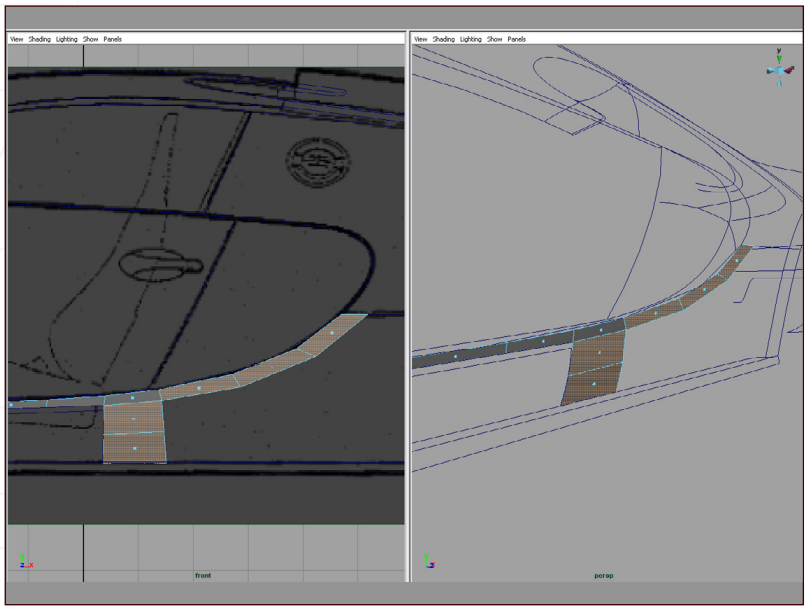


Fig 05

You can either reposition the curves so you can snap to them, or just follow the general guideline shown by the curves. We will now extrude backwards and downwards at once to get the highlighted faces (**Fig05**).

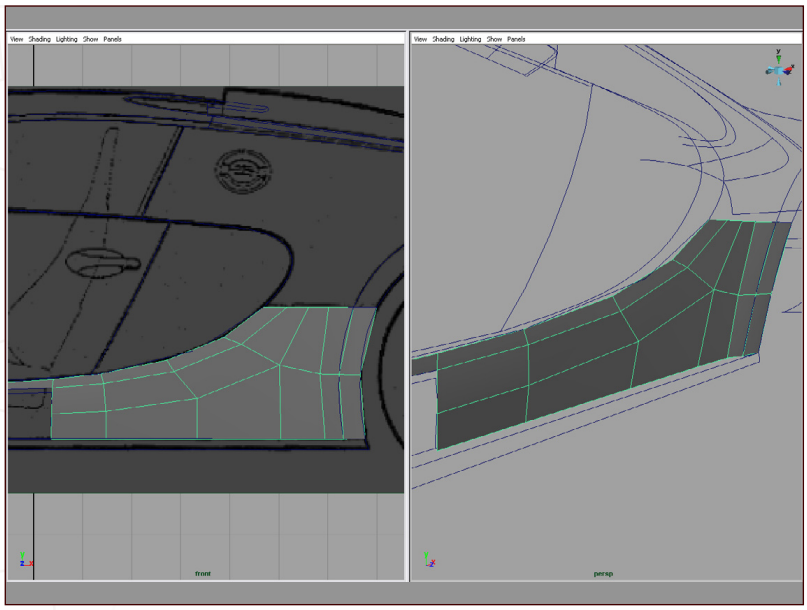
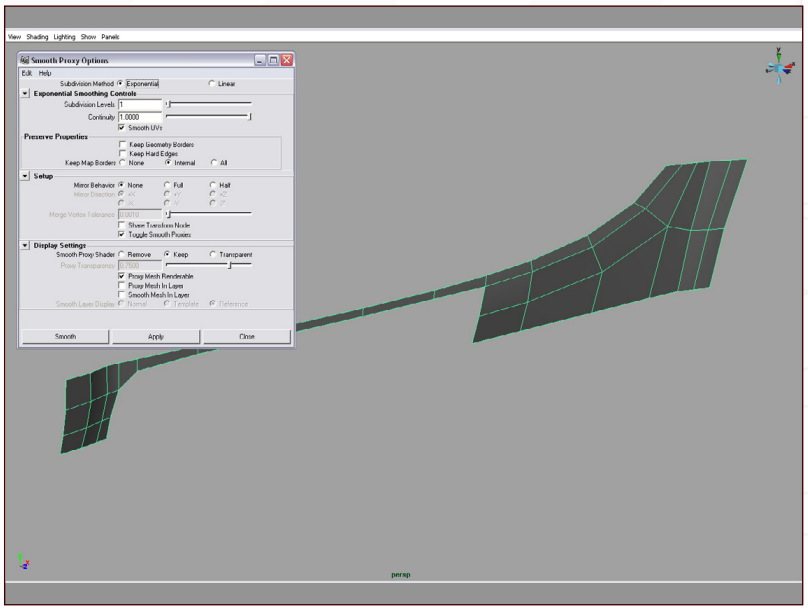


Fig 06

Make a few final extrusions, shaping as you go, to create the rear part of the side panel (**Fig06**).

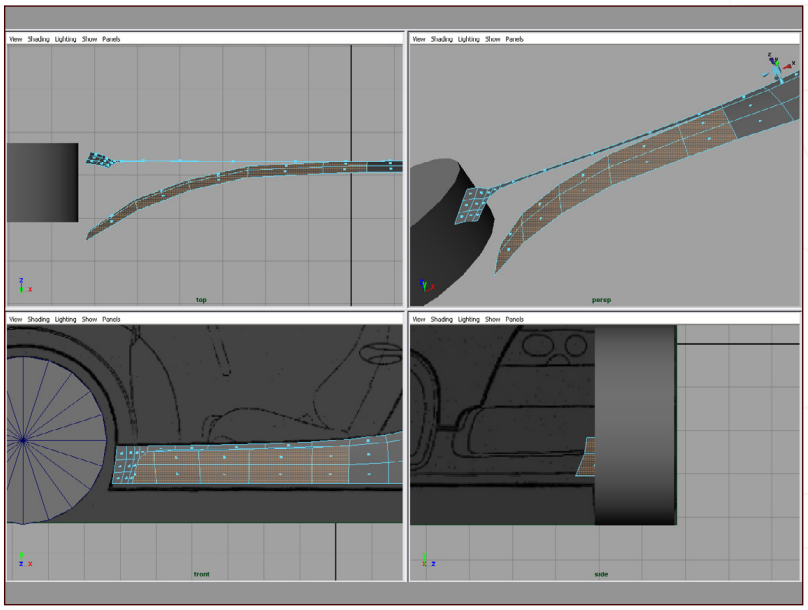
Before we go any further I would like to add a smooth modifier to the panel. My particular workflow involves using a Smooth Proxy from a very early stage and jumping back and forth between the smooth and unsmooth mesh to give a clear idea of how the mesh is shaping up. Select the side panel mesh and apply a Smooth Proxy with the settings. I then like to select the smooth mesh and hit the Page Up key, which adds another iteration to the smoothed mesh. Finally, add a blinn material to the smooth surface. This helps to show up any mesh errors and dents that need fixing (**Fig07**).

Fig 07



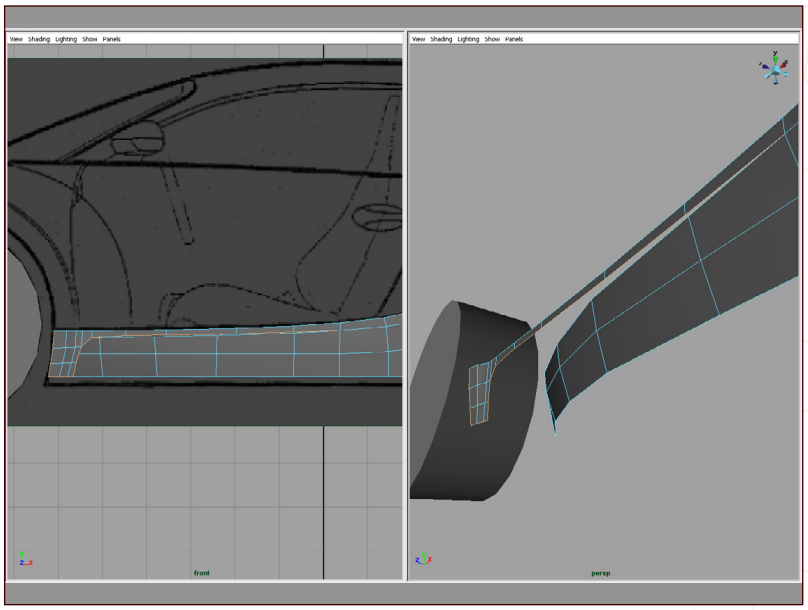
Now we will work on the air intake – a tricky piece especially if you are keeping your mesh all quads! Ideally, any model you create should be all quads because it gives much more predictable mesh smooth results. However, you can get away with using tris or even n-gons as long as you are careful where you place them. Start by making several extrusions to create the initial shape of the intake. The highlighted faces represent the new extrusions. A mock wheel has been added to show how far the intake sweeps under the body (**Fig08**).

Fig 08



Take the next bit nice and slow, because it can get confusing quickly. Select the highlighted edges (**Fig09**).

Fig 09



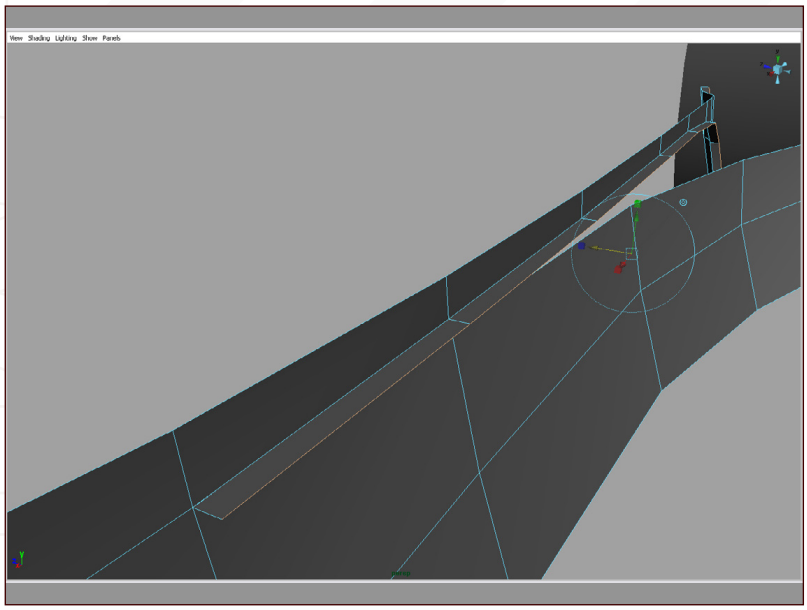


Fig 10

Then extrude them inwards a touch (**Fig10**).

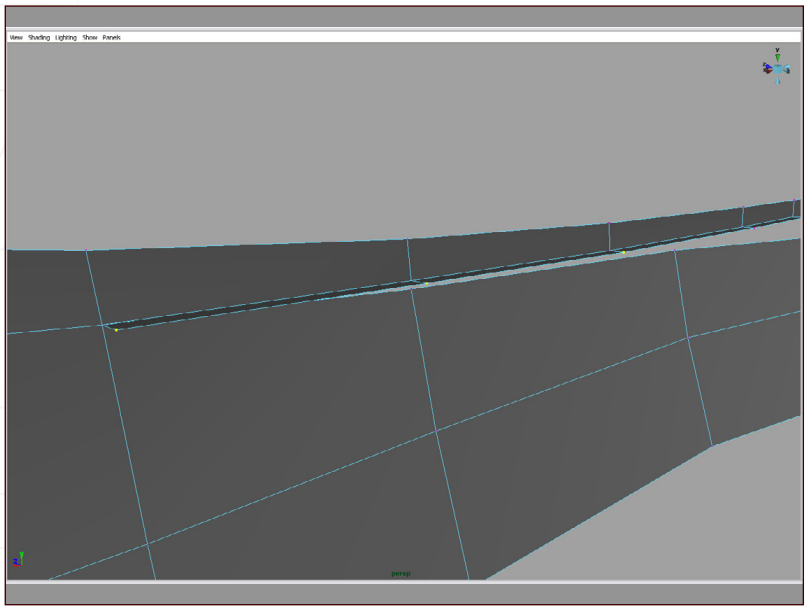


Fig 11

Take the three highlighted verts (**Fig11**).

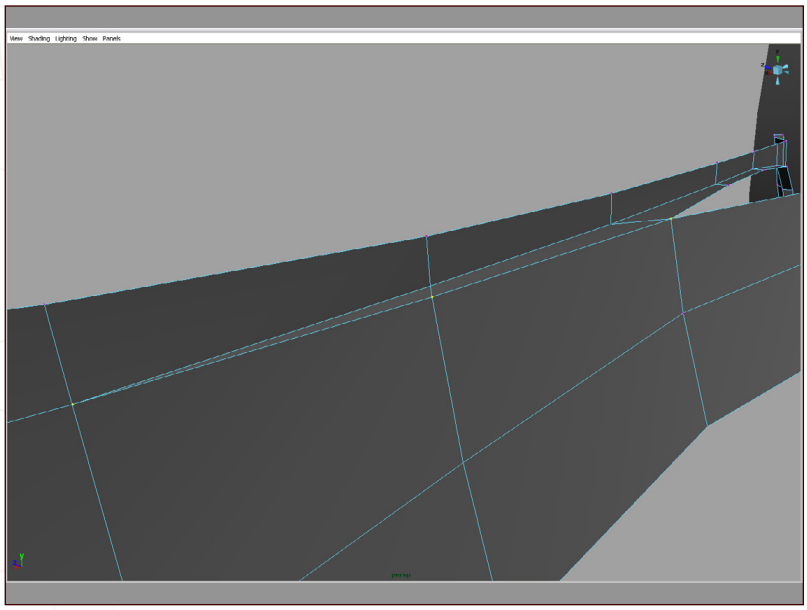
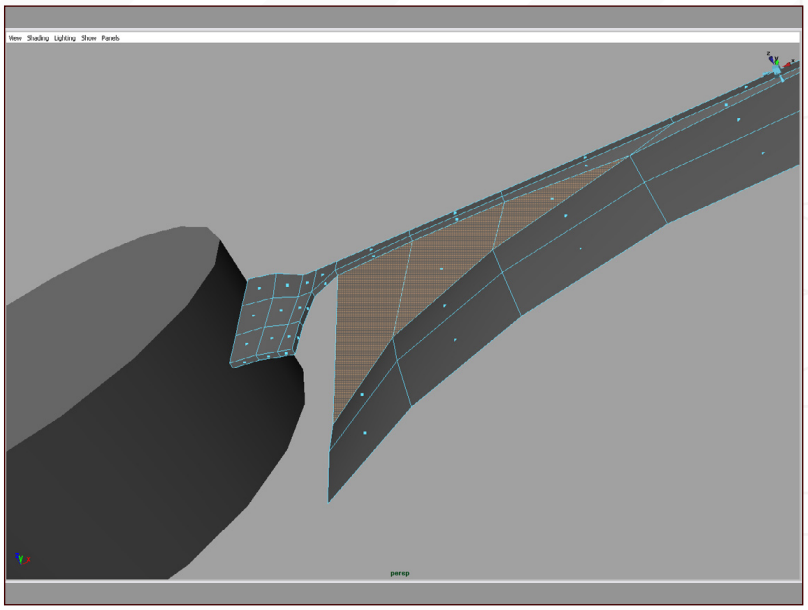


Fig 12

Then snap and merge them to the verts, highlighted in **Fig12**.

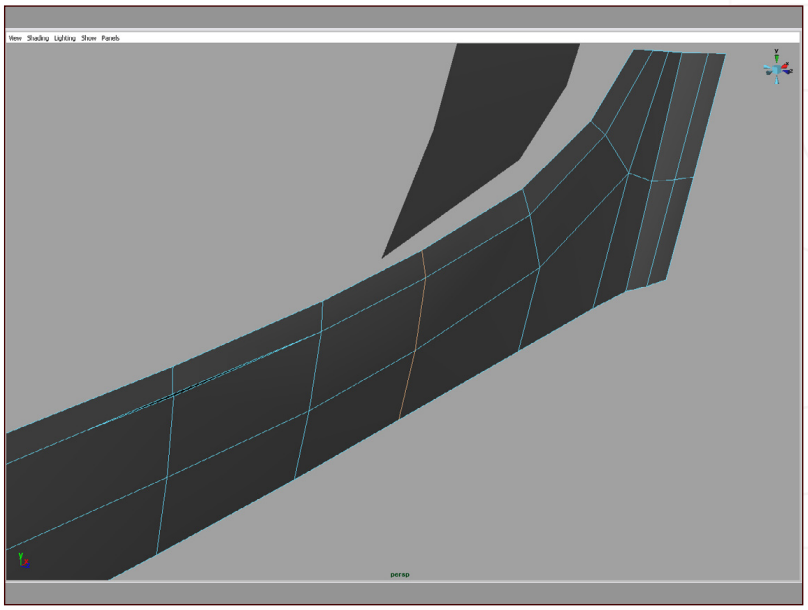
Fill the gaps in using the Append to Polygon Tool (**Fig13**).

Fig 13



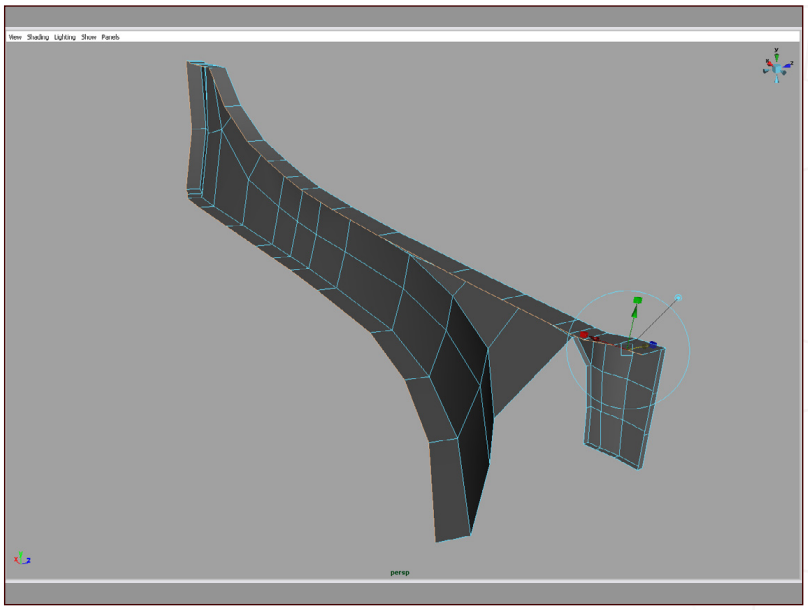
The edge here was bevelled (in my case a value just a little less than the default was used) to keeps the edges evenly spread and to create an extra edge to work with when shaping the upper side vent. The new verts should be shaped slightly to fit the flow of the car (**Fig14**).

Fig 14



The edges here were created with an extrusion. Quite an extreme extrusion is shown in the picture simply to highlight which edges were extruded. You don't need to extrude out quite so far (**Fig15**).

Fig 15



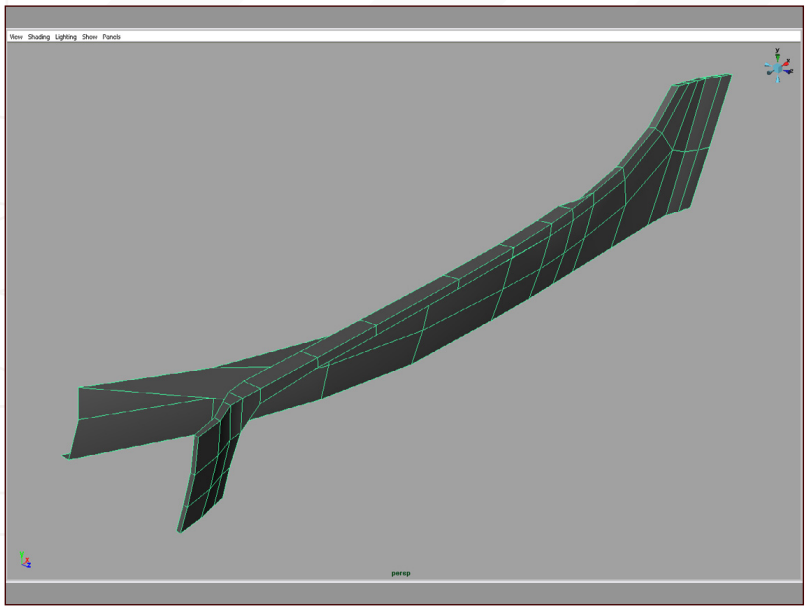


Fig 16

Shape these new verts to get something similar to **Fig16**. The most important thing is to have a decent lip for where the door sits and the start of the upper air vent.

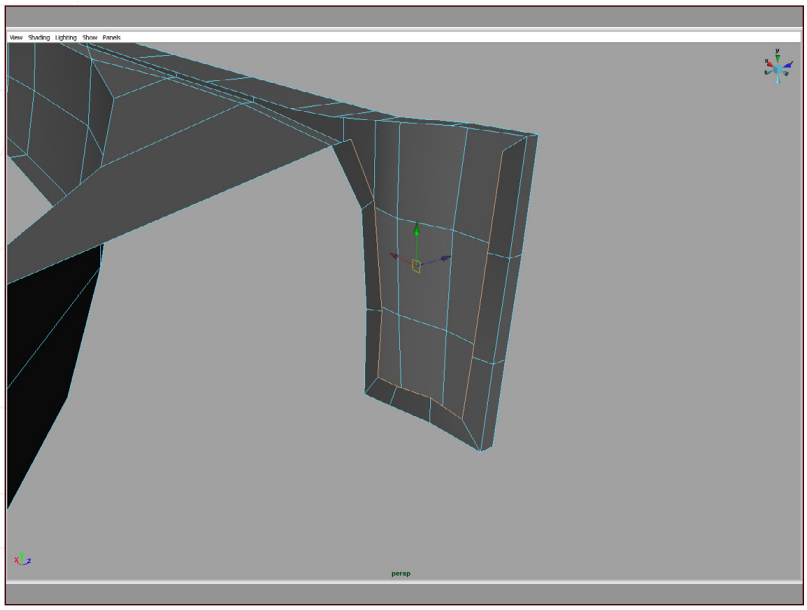


Fig 17

Extrude these inside edges inwards so that a nice bevel can be added (**Fig17**).

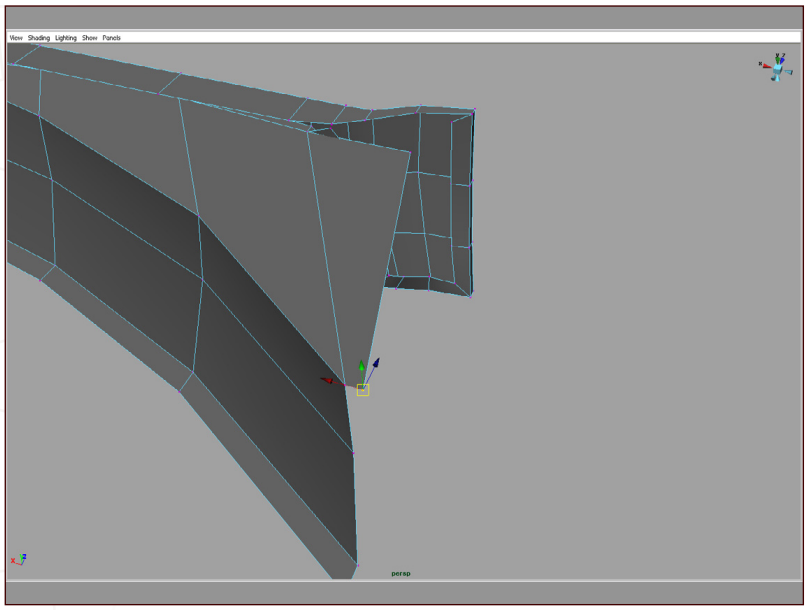
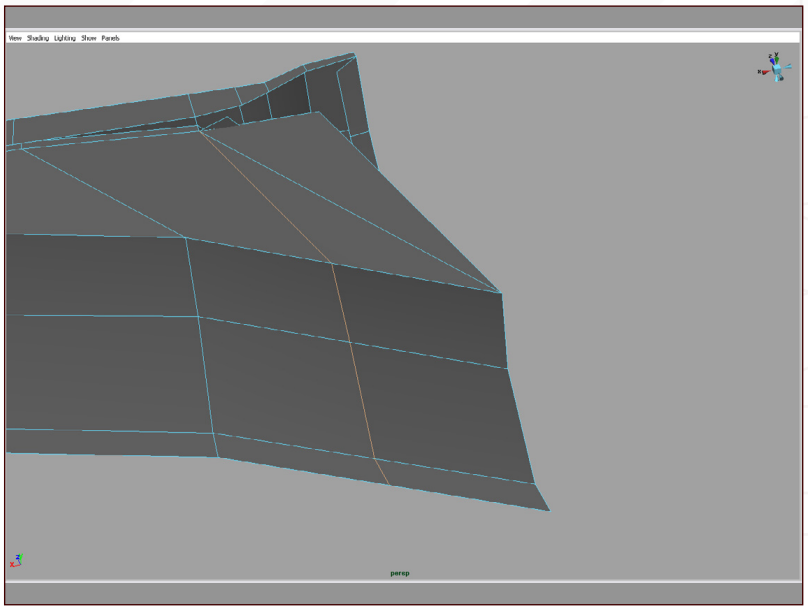


Fig 18

Create a new face by extruding the last edge of the inside vent we created, then snap the highlighted vert to the vert closest to it. This will create a triangle (**Fig18**).

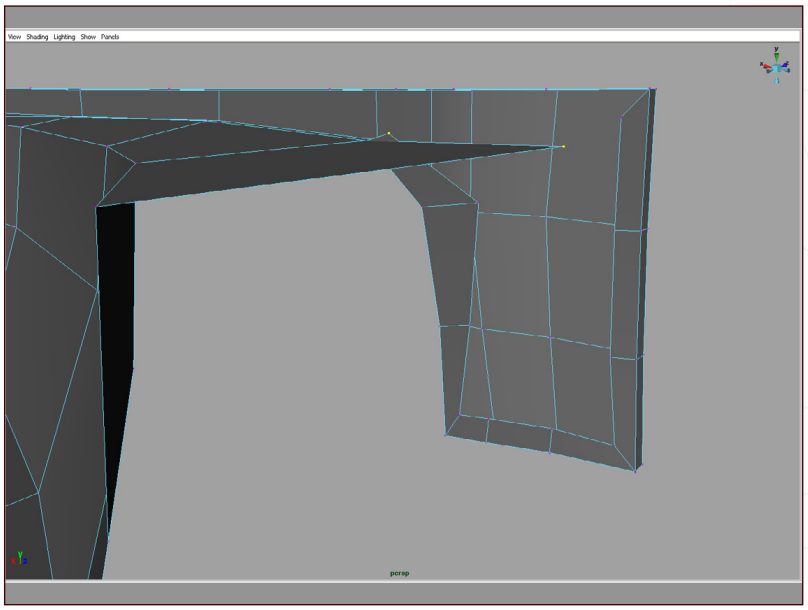
The highlighted edge was created using the Split Polygon tool and means that the two triangles can be made into a quad by removing the dividing edge. Remember to shape the newly inserted edges to keep a smooth flow to the intake (**Fig19**).

Fig 19



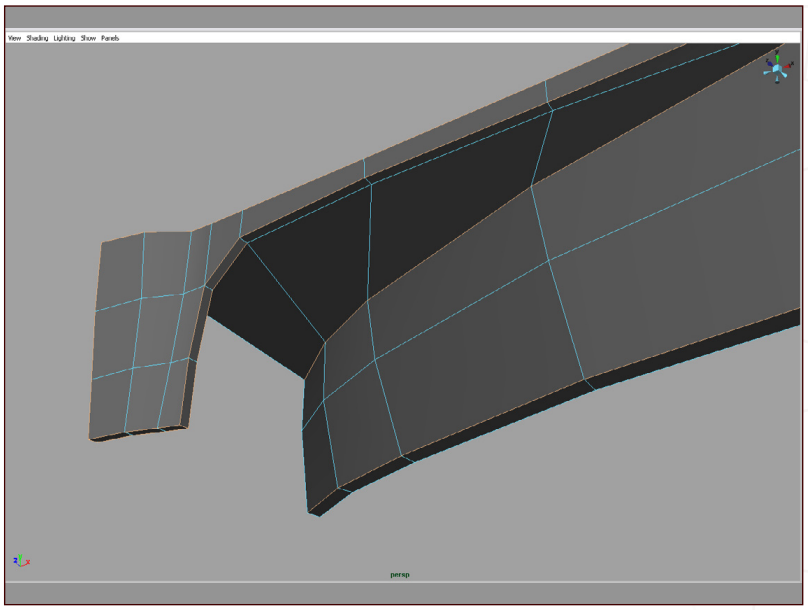
Merge the vert on the left of **Fig20** to the vert on the right and tidy up the flow of verts of the inside area.

Fig 20



We will now run a bevel over the outer edges and the edges that make up the air intake. Select all of the edges that make up the outer edges of the panel and all of the edges in the following pictures. Make sure you select the corners, too. Take your time with these selections and try and grab all of the edges (**Fig21, Fig22, Fig23** and **Fig24**) – basically, all of the outer edges and corners and the edges of the intake.

Fig 21



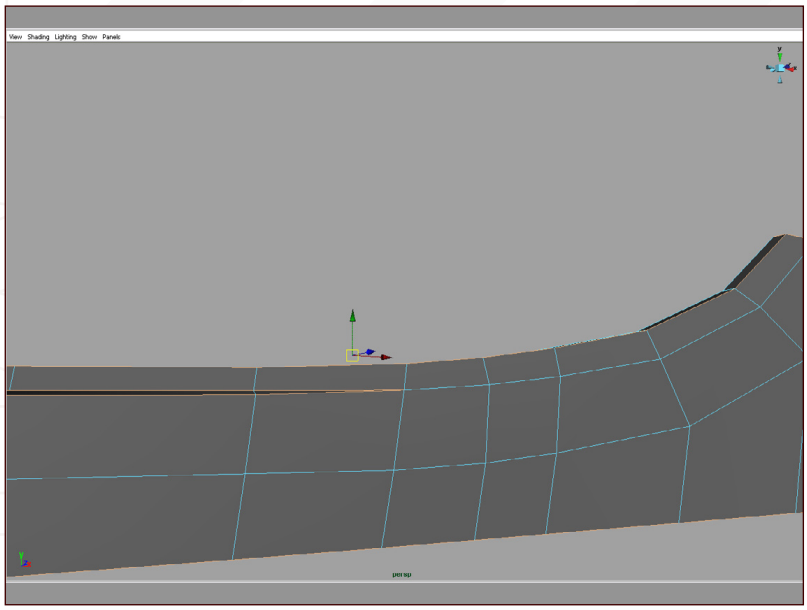


Fig 22

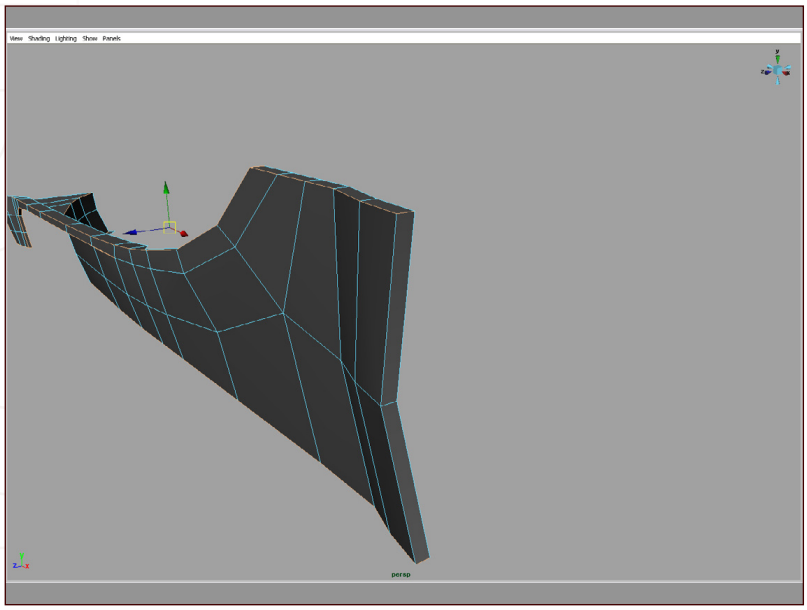


Fig 23

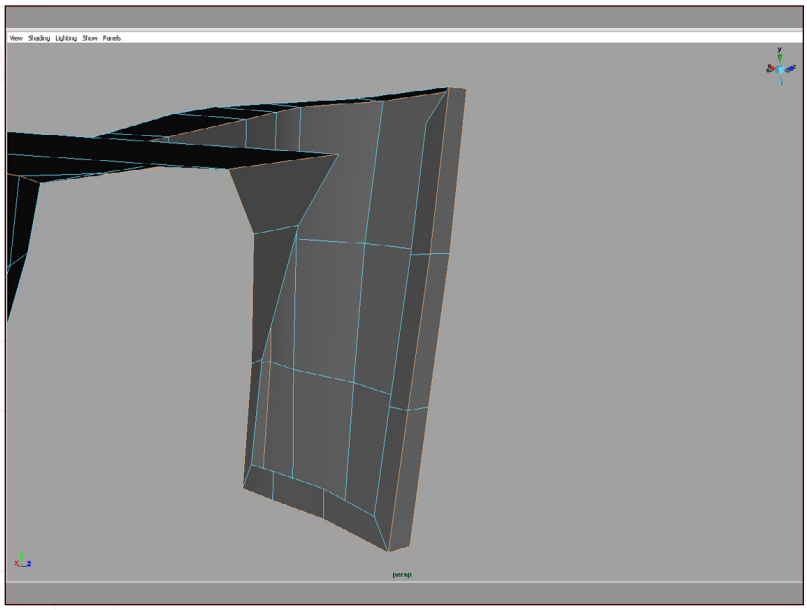


Fig 24

This is showing the inside of the intake. Don't forget to select these edges (**Fig24**).

Run a bevel with the default settings (**Fig25**) and merge the verts in **Fig26** together, as these triangles generally lead to mesh errors, so look for any more on the outer surface. Ignore any verts like this on any part of the air intake.

Fig 25

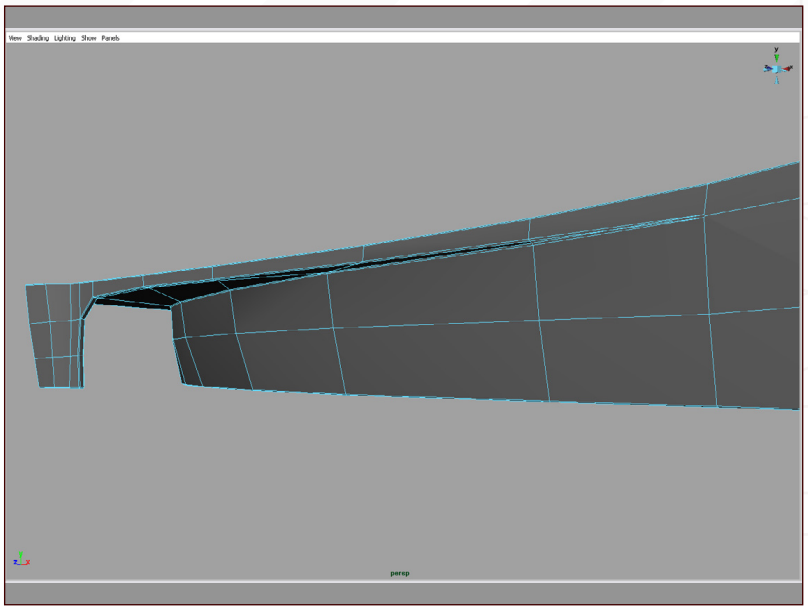
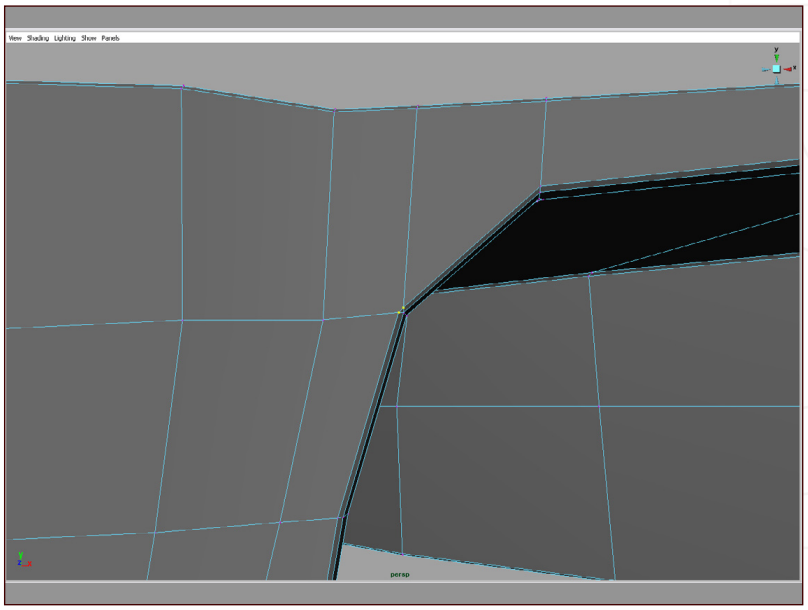


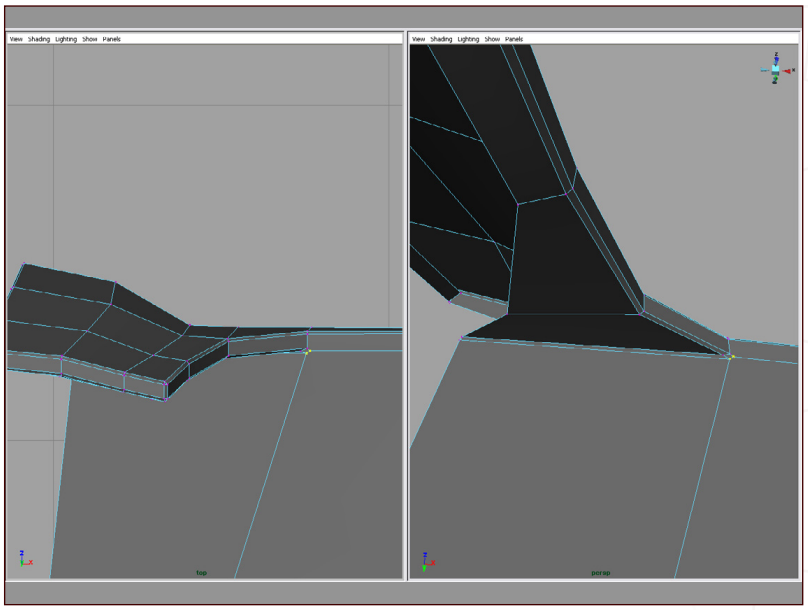
Fig 26



We are going to perform a series of cuts to tidy up the mesh and make it pretty much all quads. It may be a bit confusing which parts I'm cutting and shaping, so I will show lots of pictures. Just take your time and follow along and hopefully it will all make sense what I'm doing, and why.

Merge the two selected verts (**Fig27**).

Fig 27



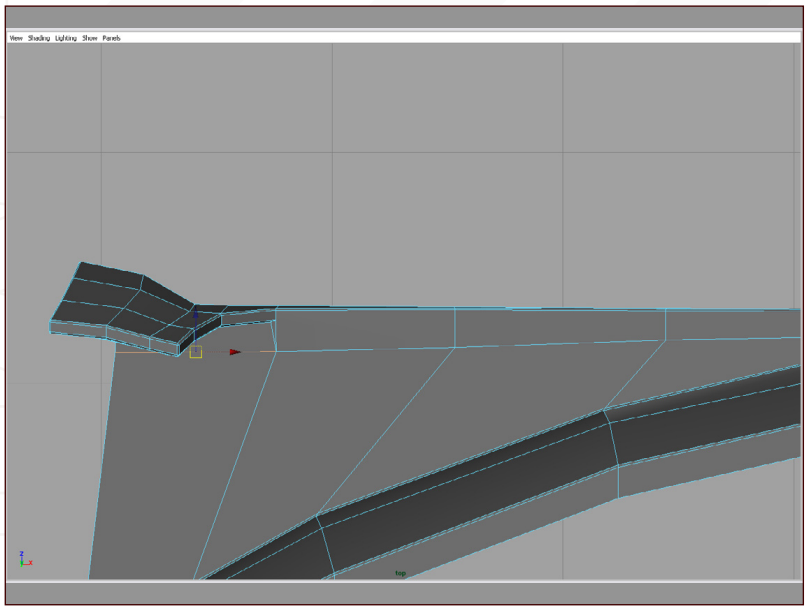


Fig 28

Move the resulting edge outwards and tidy up any verts to produce a clean flow of geometry (**Fig28**).

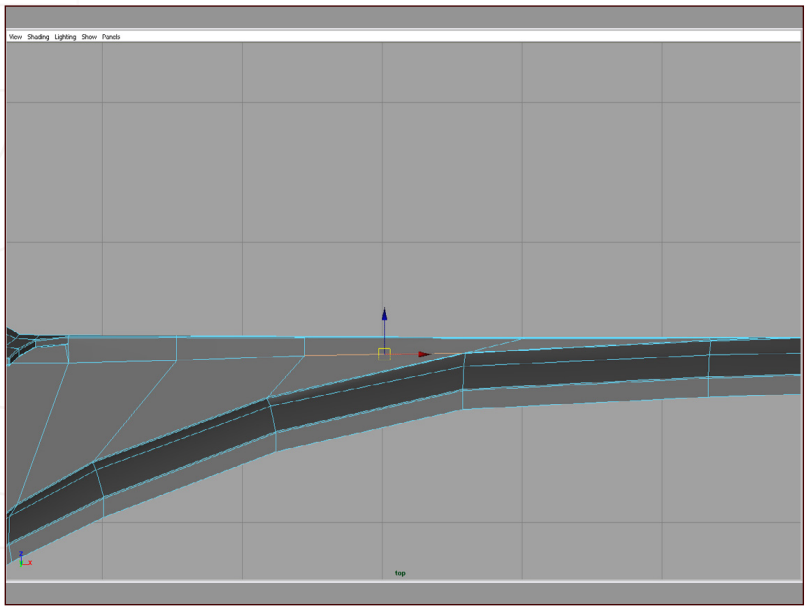


Fig 29

Delete the selected edge (**Fig29**).

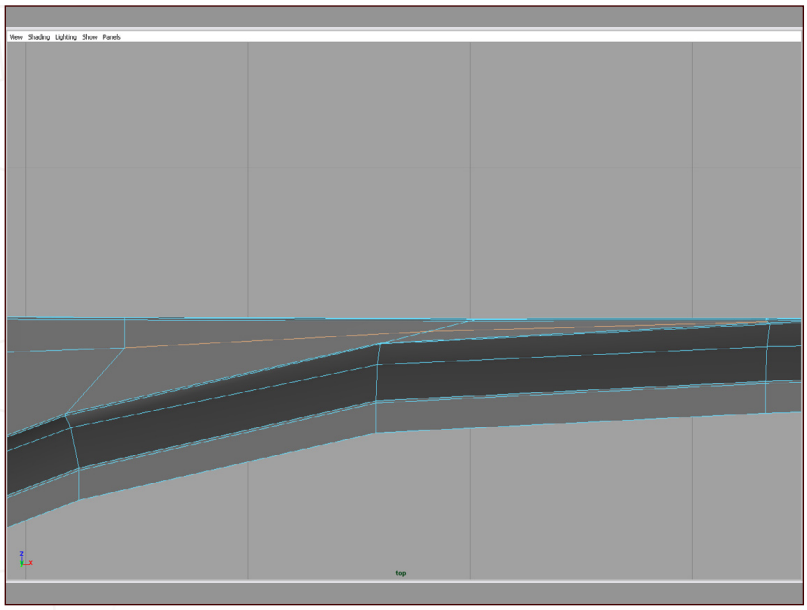
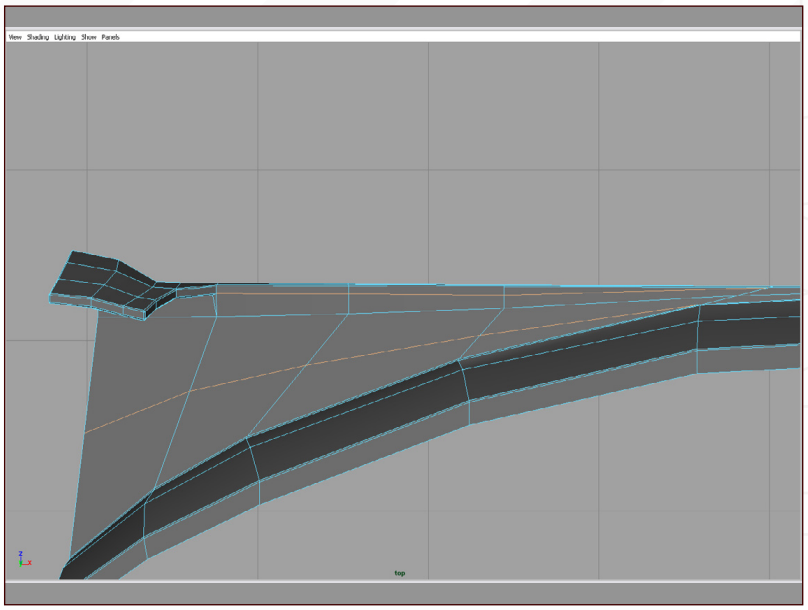


Fig 30

Then insert the two highlighted edge. This will turn the triangle at the corner of the intake into a quad (**Fig30**).

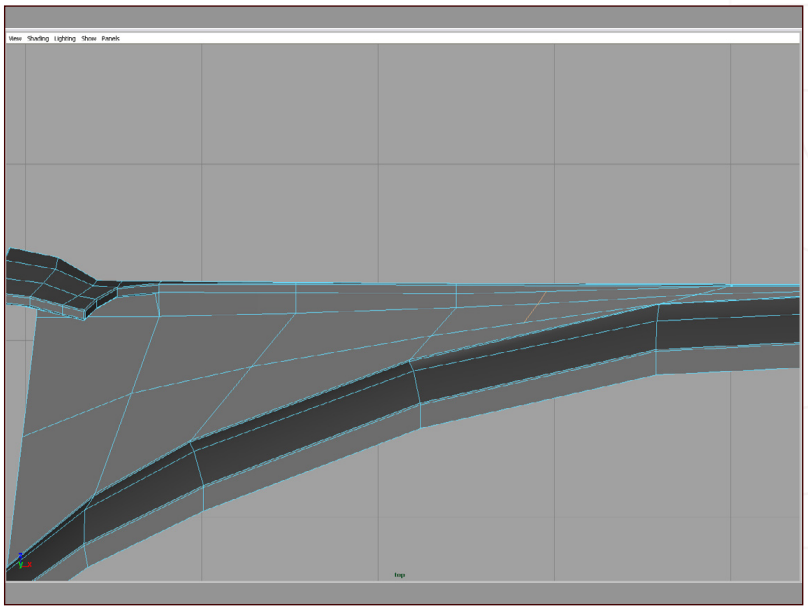
Make the two highlighted splits as shown, which will result in two triangles (**Fig31**).

Fig 31



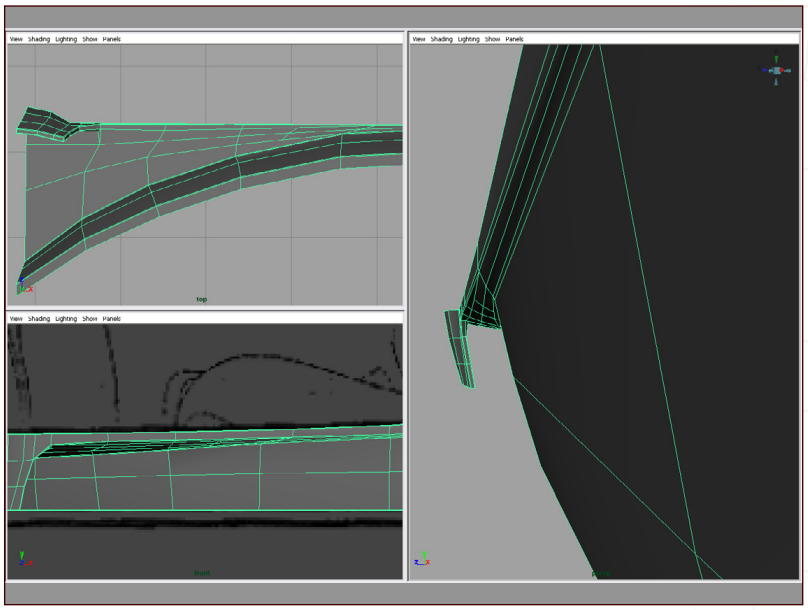
To fix this just make the split (**Fig32**).

Fig 32



Now the most important parts of the mesh consist of quads, and any tris are hidden in places where they will not be seen. The next thing to do is to tidy up the mesh so that it's all flowing nicely, because we have added a lot of cuts and deleted a lot of edges without shaping in-between (**Fig33**).

Fig 33



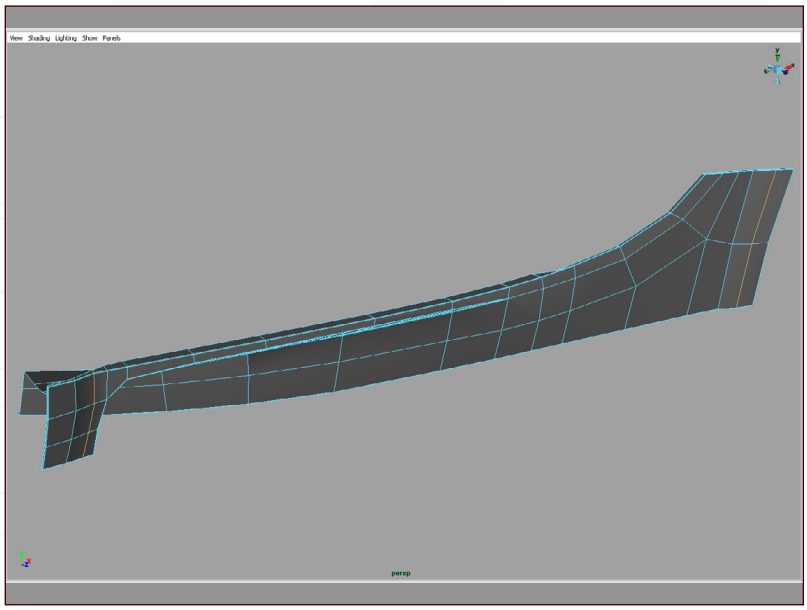


Fig 34

Once the mesh is tidy, just select the highlighted edge loops and bevel (**Fig34**).

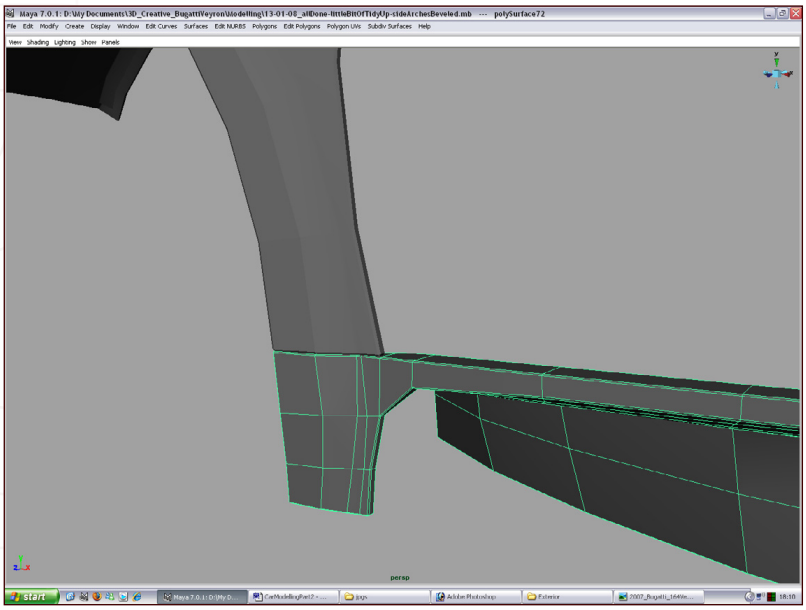


Fig 35

Then move the bottom most verts on the front arch slightly apart so that the crease fades out.

Well that piece has taken a lot of work and was quite a lot to take in. However, with that piece out of the way the rest should go a whole lot smoother now we know what we're doing. Also, you may like to put another edge loop in at the back to help with the rounding of the wheel arch. I didn't feel the need to do this myself at this point, but it's something to bear in mind (**Fig35**).

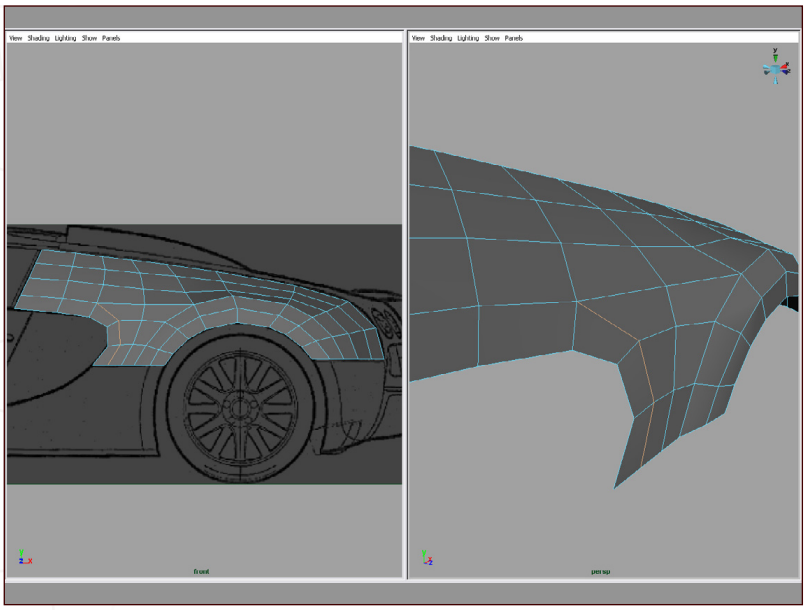


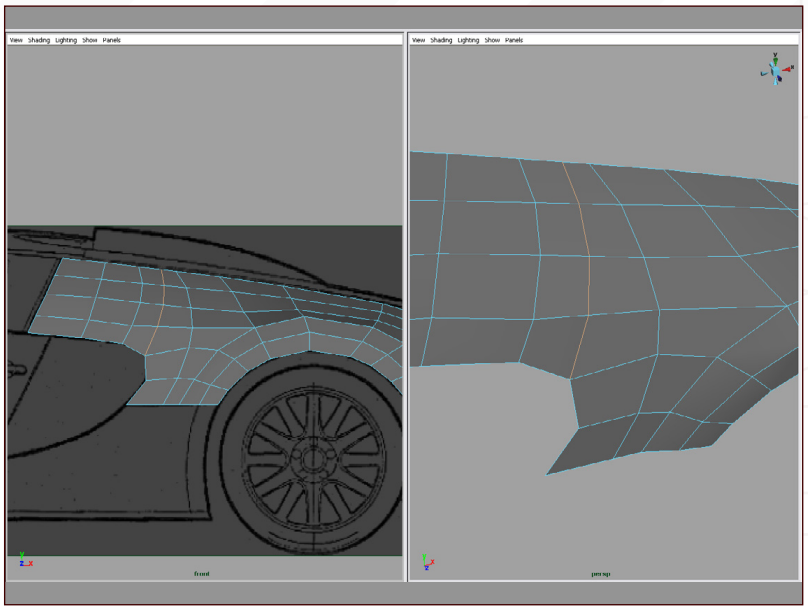
Fig 36

We will now move on to the rear fender where the first thing to do is to apply a Smooth Proxy with the same settings as for the side panel (make sure to add a blinn material to the smooth mesh). In the first part of this tutorial series I mentioned how the rear fender needed to flow in many directions at once, and upon rotating around the smooth object it is obvious that there are many dents in the initial mesh. The best way to fix these dents in this case is to correct the flow of the polygons, because at the moment they aren't quite working for us and it will be easier to correct the flow rather than tweak what we have already.

Let's begin by deleting the highlighted edges (**Fig36**). Make sure you use the Delete Edge tool and not just the delete button on the keyboard, as this will delete the edges but not the verts. The Delete Edge tool will remove both verts and edges.

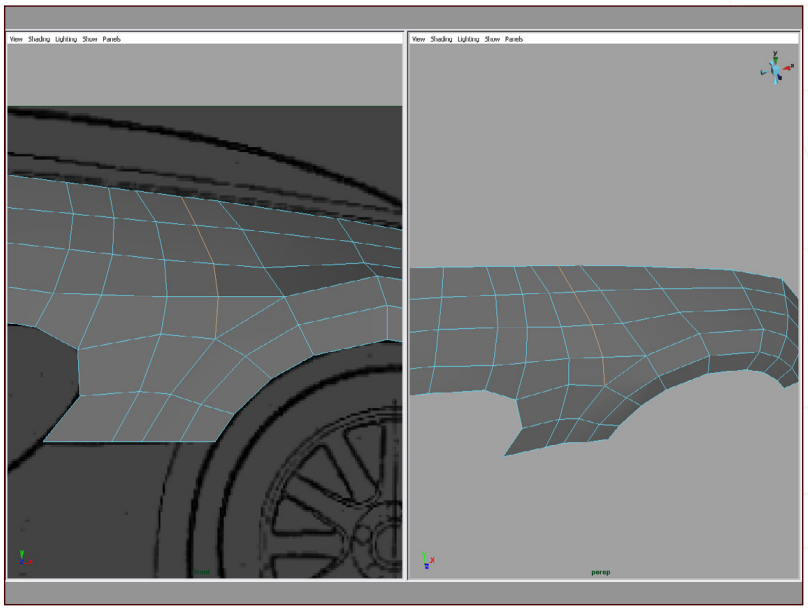
Once again we're going to make a number of cuts just to get the initial flow, and then we will tidy up the newly inserted verts. The deletion of edges in **Fig36** has led to the creation of a 5-sided polygon. This is generally bad practice and can affect the smooth mesh. We will make the mesh all quads again with the following cut (**Fig37**).

Fig 37



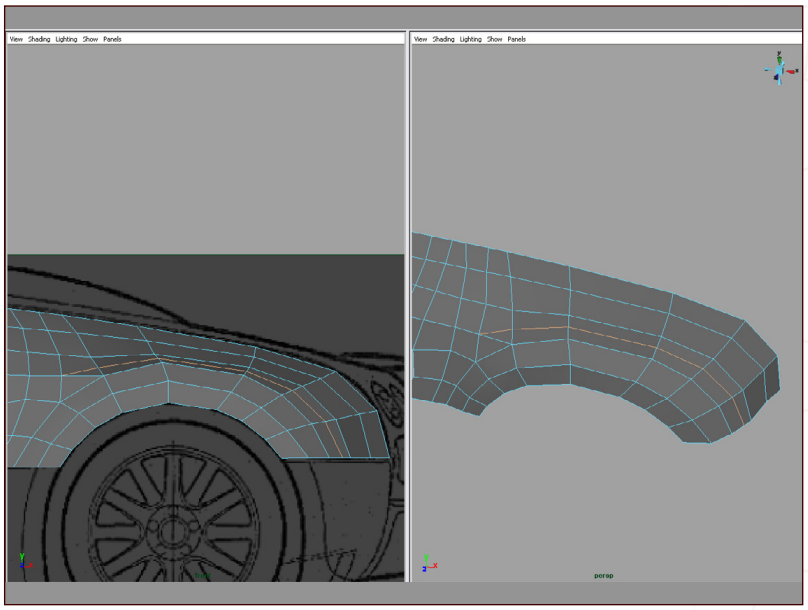
Insert some new edges, noting that a tri has been created. We will fix this soon (**Fig38**).

Fig 38



Run a new split from the corner of this tri all the way to the back of the car (**Fig39**).

Fig 39



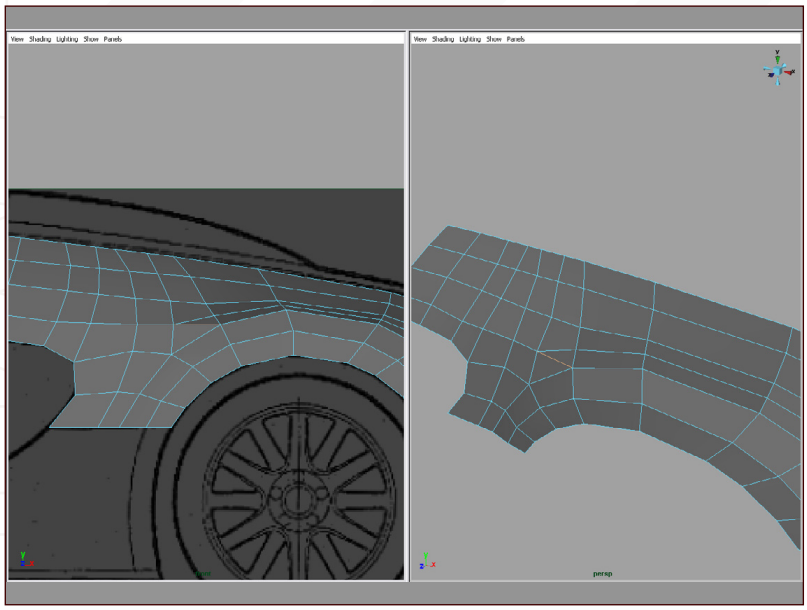


Fig 40

Finally, remove the highlighted edge to get us back to all quads (**Fig40**).

Right, the flow of the mesh is a whole lot tidier and closer to the car in real life; however, if you check the smooth version there is a lot of pinching and creasing of the mesh. This is due to the fact that we have added a lot of new detail but haven't tidied as we've added, so some edges are too close to each other and are causing creases. Take your time cleaning up the mesh, trying to evenly space the vertices whilst keeping a nice flow to the geometry. Make sure to use your guide curves a lot throughout this process, as well as the blueprints and references. Also remember to sight down rows of verts to check for any kinks in the mesh, and keep jumping back and forth between your smooth mesh and unsmooth mesh because it is the smooth mesh that we are modelling to. Don't be afraid to grab a vert or two and then toggle to the smooth version and move the verts while viewing the smooth version – a technique I use a lot. Try and lay your verts out similar to what I have in **Fig41**, making sure it looks good smoothed. You will notice that in some places I have pulled the verts away from the lines of the blueprints. This is because the actual geometry shrinks a bit when smoothed. This piece will take a little while to get looking right, so don't rush yourself or get frustrated – there is a lot of tweaking involved!

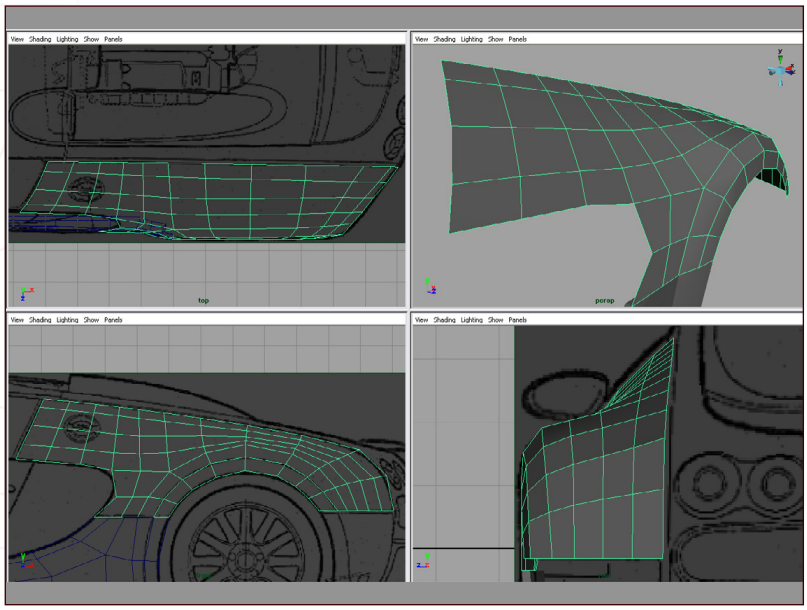


Fig 41

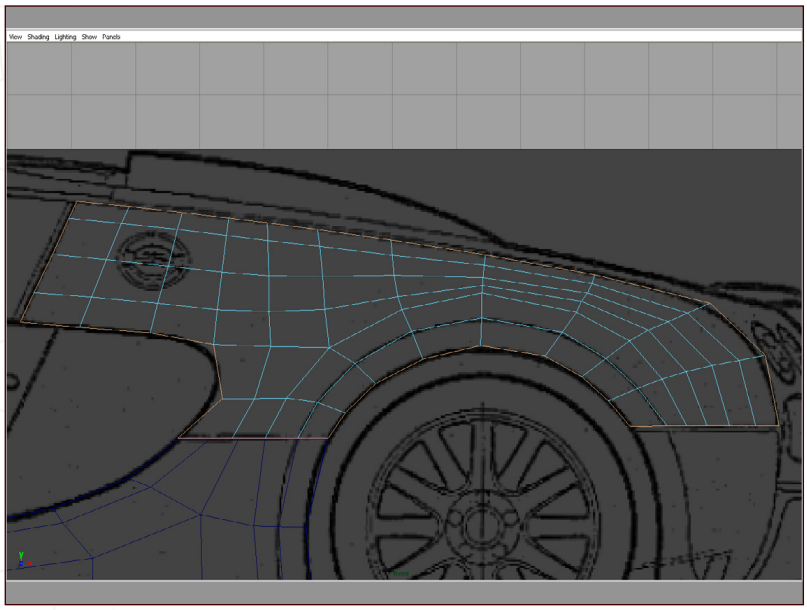
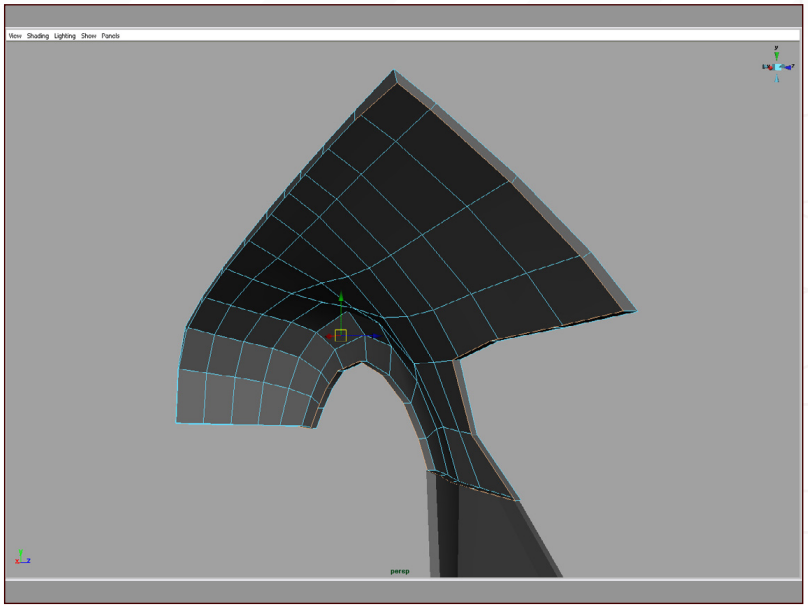


Fig 42

Next, grab all the edges in **Fig42** and extrude in normal mode (along the Z-axis, it should be). This is the default extrude mode and yields good results without much clean-up required. This is different to world mode where all edges would extrude along a set axis. The extrusion will require a little bit of tidying up, which mainly involves lining the new verts up with the verts that they were extruded from, just so the extrusion is nicely tucked in line with the main mesh.

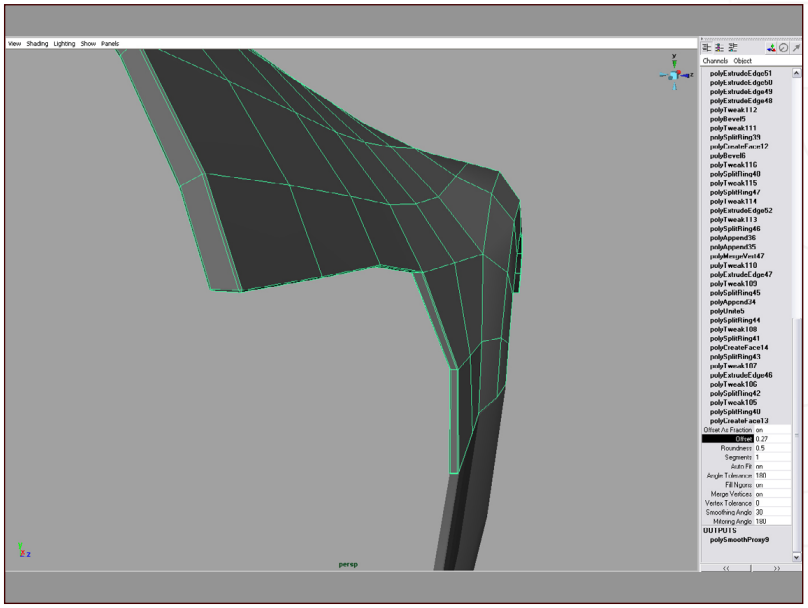
Next we will extrude some of the inside edges, so grab the edges (the ones outlining the wheel arch, air intake and the edge by the door window) and extrude inwards, again in normal mode. These new verts may require a little tidying up also, but they shouldn't actually ever be noticed so don't waste too much time on them. The reason we have extruded these edges inwards is to create some depth on the inside of the panel, mainly for catching highlights and stopping these particular edges ending too soon. You'll be able to see what I mean if (once this piece is bevelled) you compare it to the smoothed side panel, particularly around the side intake. We will be addressing the side panel in another part, when we start preparing the inside of the car (**Fig43**).

Fig 43



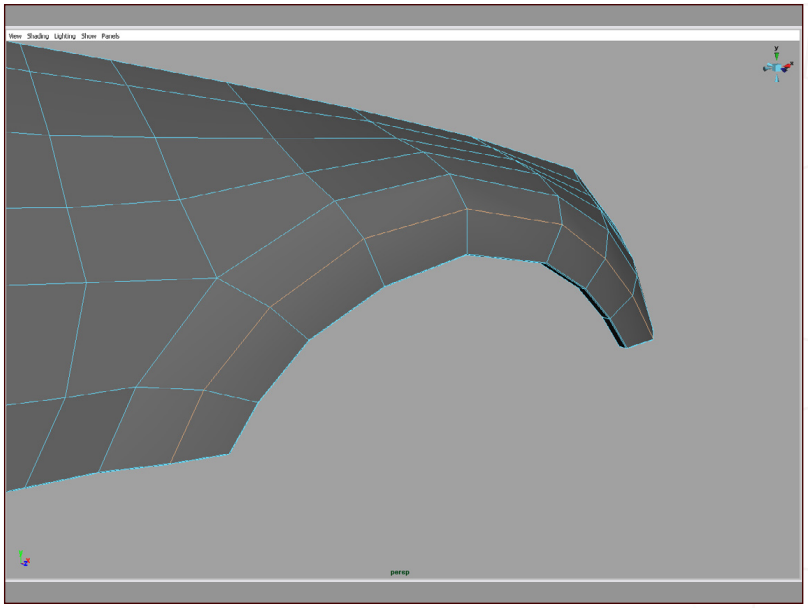
Anyway, grab all of the outer edges and the new inside edges along with the corners, just like we did with the side panel, and run a bevel (**Fig44**). Try and get the bevel to a similar size as that on the side panel. Clean up any tris that cause pinching in the smooth mesh. I had one about half way along the side intake.

Fig44



Have a final check of your smooth mesh now that it's bevelled and make any adjustments necessary. Finally, bevel the edges along the wheel arch to create the hard edge seen in your reference pictures (**Fig45**).

Fig 45



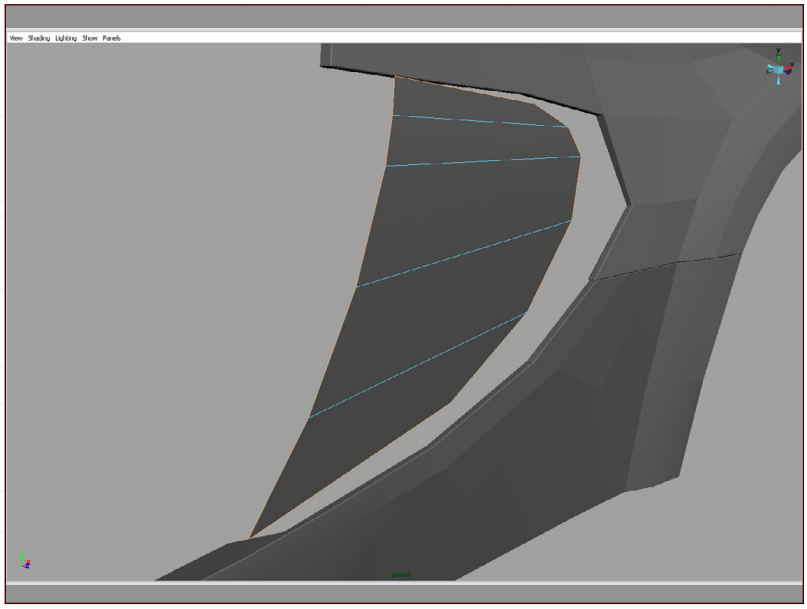


Fig 46

Let's move onto some simpler pieces to give us a bit of a break from thinking! The panel near the side intake is simplicity itself. Just grab all of the outer edges and extrude straight back in Z a little. Then extrude these new edges to create some depth. I uniform scaled them in world mode (**Fig46**).

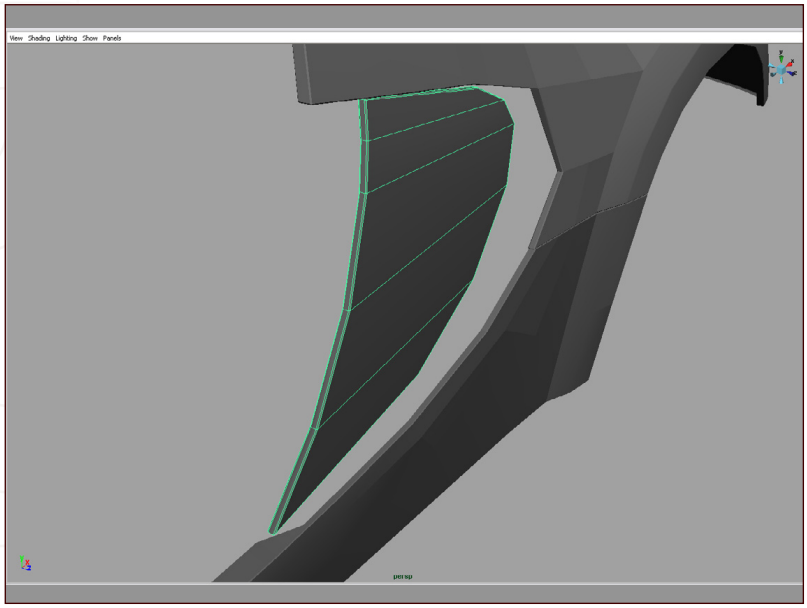


Fig 47

Finally, grab all of the outer edges and corners and bevel them before adding a Smooth Proxy (**Fig47**).

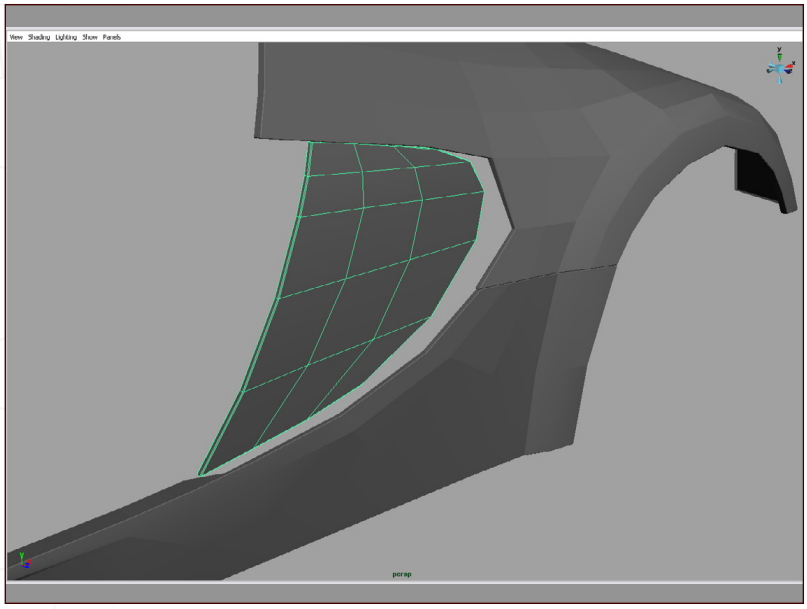


Fig 48

Add a few extra vertical cuts just to ensure an even distribution of polys and shape the panel until it looks right (**Fig48**).

The door is also extremely simple (for now) and will follow a similar pattern to the last piece. I would highly recommend duplicating the door and placing an unedited piece in a new layer. This is because I will show you how to create the door piece for a car without an interior (or one that never opens), so that you can see how the exterior is shaping up. However, when we get to the interior modelling part of this series I will most likely model the inside of the door using the exterior piece and then apply all of the bevels at once. So for now, just grab all of the outer edges and apply an extrude along the Z-axis in normal mode. Grab all outer edges and corners and run a bevel. Select the edges along the door where the side mirror sits, and give these a bevel too because this is a sharp edge. Finally, run two more vertical cuts near the edges of the door to keep the bevels nice and tight, and apply a Smooth Proxy. All of the above can be seen in **Fig49**, so just follow closely. Once that is done, make sure that you check and close any gaps between the door mesh, the panel behind the door and the side panel, by simply grabbing bunches of vertices and moving them while in smooth mode.

Fig 49

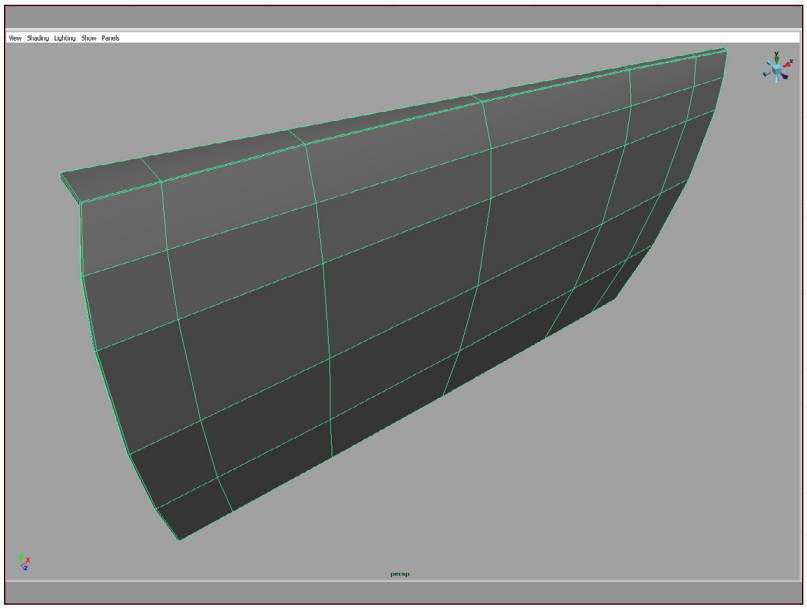
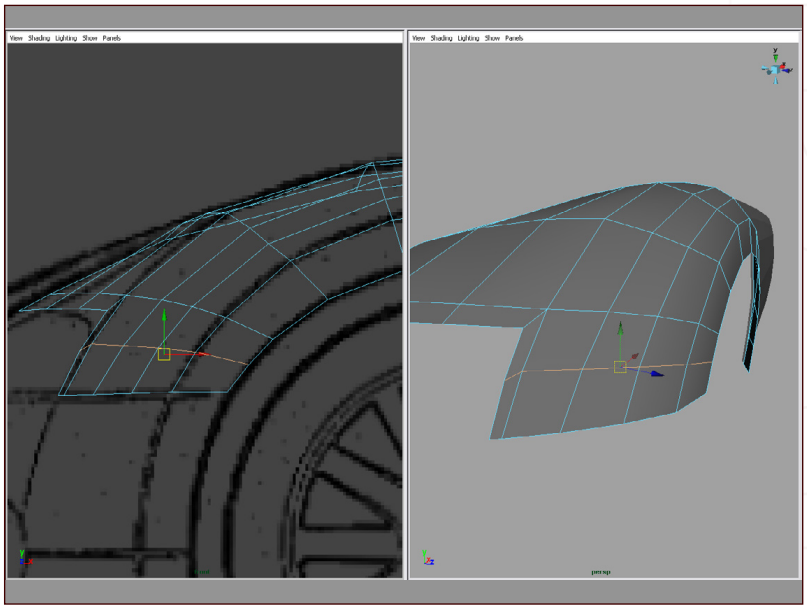


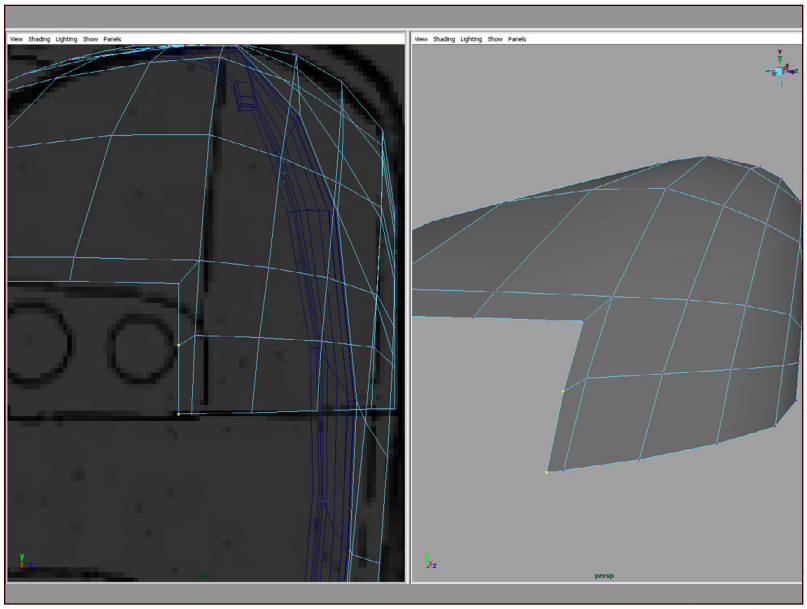
Fig 50



The front fender is up next and again I'd like to change the poly flow ever so slightly, just so it's easier to work with when it's smoothed. Make the cut as shown and tug the edges forward a bit to keep the curvature in the wheel arch (**Fig50**).

Grab the two verts and snap each one in turn to the vertex, immediately to the right of it (in the picture). This will allow us to create the crease in the fender and shape the front light a lot more easily. Spend a bit of time readjusting the spread of the verts and making sure the fender is looking nice when smooth (add a Smooth Proxy) (**Fig51**).

Fig 51



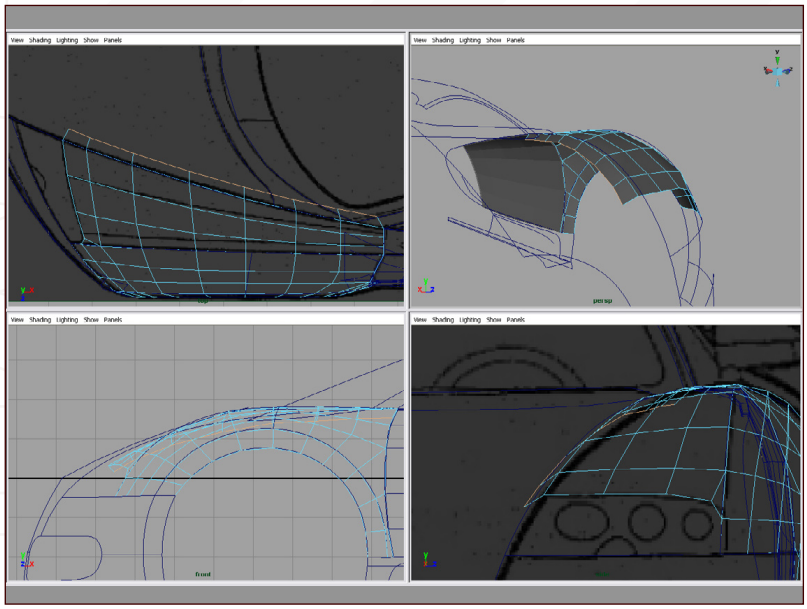


Fig 52

Select the edges that make up the side closest to the bonnet and extrude out and down a bit to create a lip under the bonnet. **Fig52** shows this new edge in place and tidied up a touch. This extrusion serves two purposes: firstly it stops there being a gap between this piece of geometry and the bonnet because the bonnet is actually raised slightly above the front fender, and secondly it provides a starting point for if we decide to model the boot compartment.

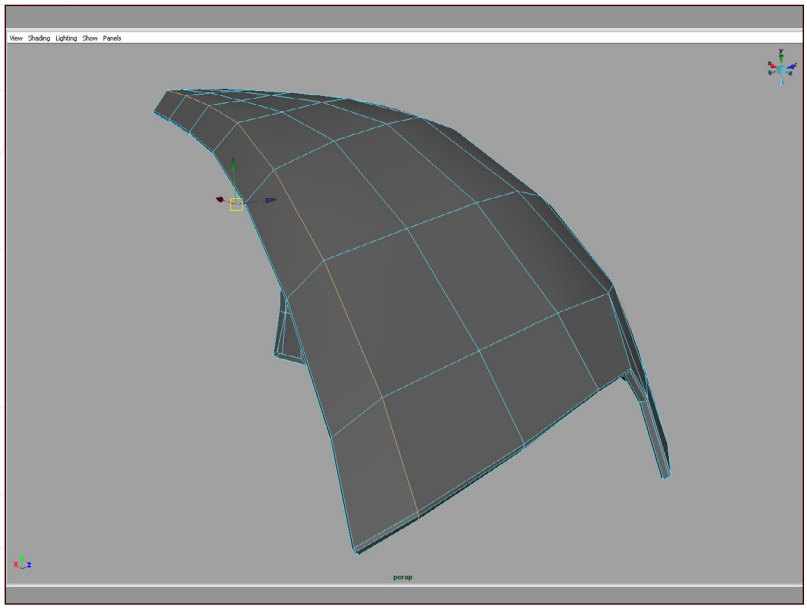


Fig 53

Grab all of the outer edges of this mesh and perform an extrusion in the Z normal direction – not a big one, just enough to create some width. Then extrude these new edges, again in the Z normal direction, to create some inside depth to this piece. Next, grab all the outer edges, like we have done before, along with the corners and bevel them. Take a quick look around the smooth mesh and clean up any kinks caused by stray verts from the bevel, or any uneven rows of vertices. Select the edges in **Fig53** and bevel them to create a sharp edge under the bonnet.

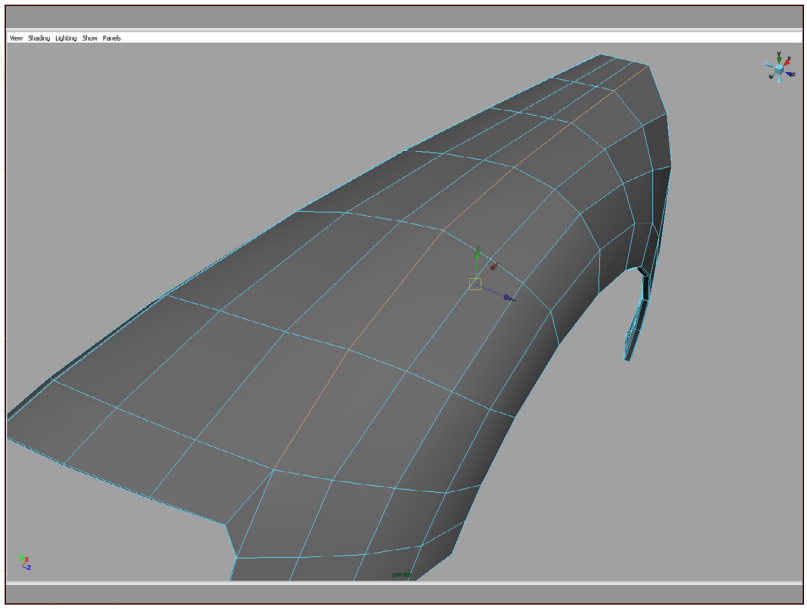
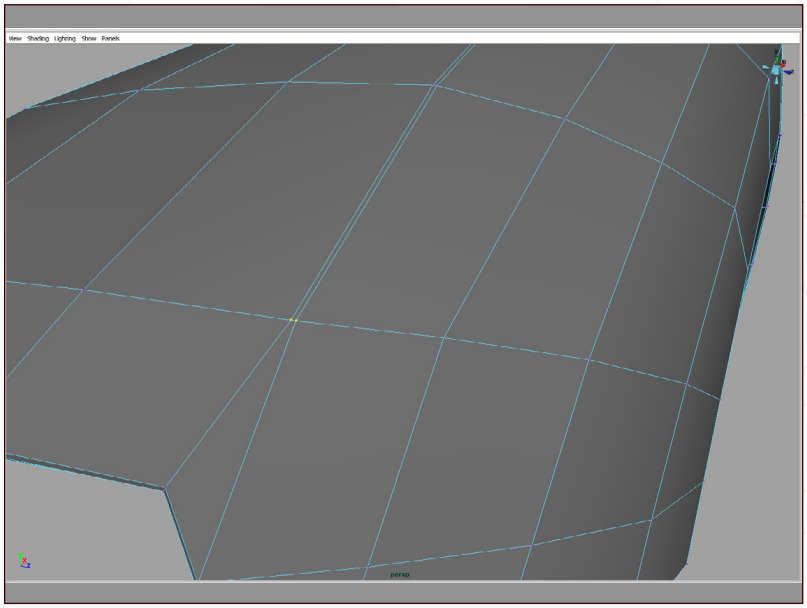


Fig 54

Select the edges shown (note that the very last edges near the light have not been selected) and perform another bevel (**Fig54**).

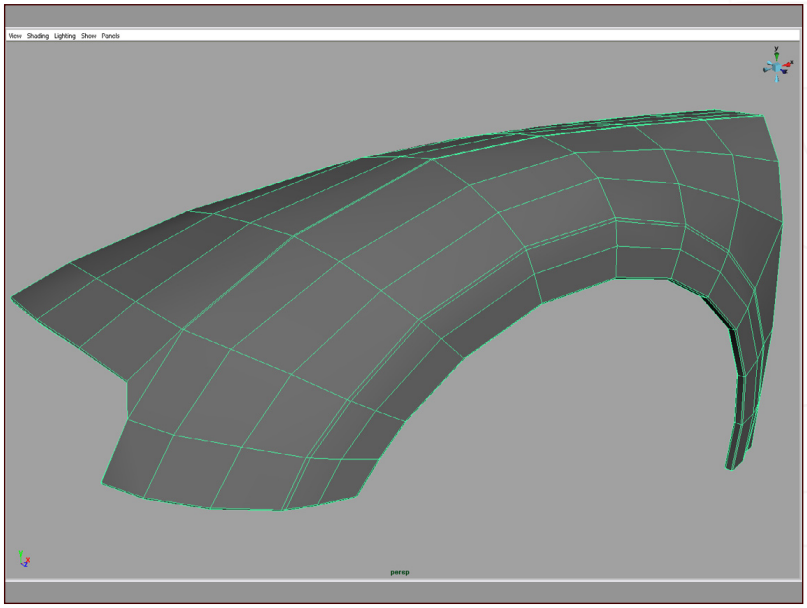
Tidy up the area so that the highlighted verts consist of just two verts. This will get rid of the tri we created towards the start of this piece (**Fig55**).

Fig 55



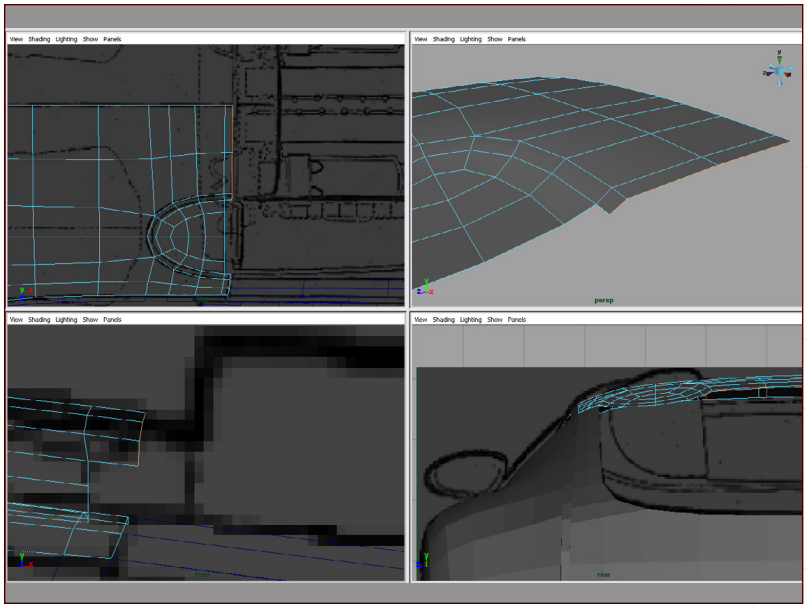
Finally, bevel the edge outlining the wheel arch and add a cut along the middle of these faces for a bit of subtle rounding, then line it up with the rounding of the side piece (**Fig56**).

Fig 56



Right, onto the roof now... not too many more parts to do! We'll begin by creating the little roof plate that attaches to the back. Grab the three edges and extrude almost all the way to the end of the plate. Deselect the furthest edge from the centre of the car and pull the remaining two edges back towards the roof of the car a touch. The reason we deselected that edge is because it will be built on to create the lip of the roof plate. So shape the verts you have a little, then grab this edge and extrude it twice so it lines up with the verts that were just extruded. Then snap each vert to its corresponding vert. Make sure you shape as you go, following the curvature of the roof line (**Fig57**).

Fig 57



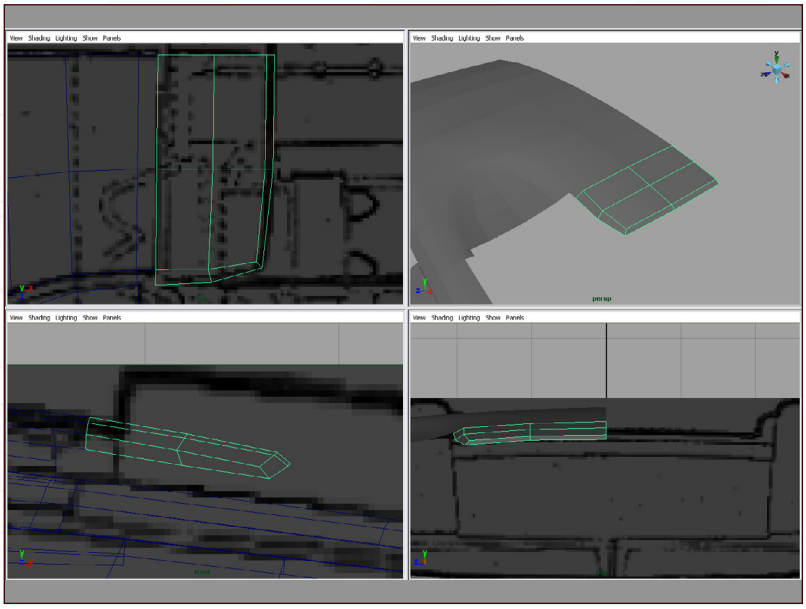


Fig 58

Now split those first faces you made in half and use them to shape the plate further. **Fig58** shows how your mesh should be looking. Oh, and don't forget to extract these newly extruded faces from the roof – you want the roof plate as a separate mesh. We will now basically make some extrusions to convert this plate into, essentially, a box. Grab the two edges closest to the centre of the car that we originally used to extrude from (on the roof plate piece, not the roof).

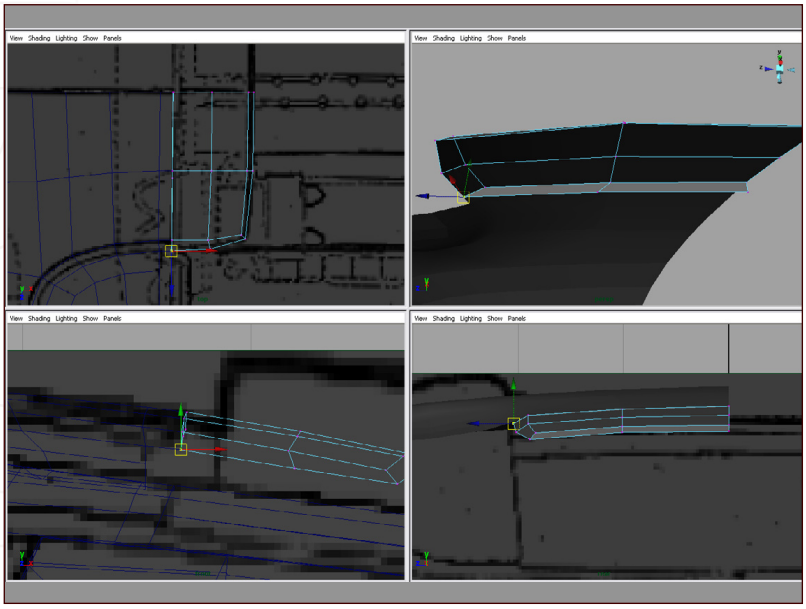


Fig 59

Extrude these downwards roughly in line with the lowest point of the edge, next to the selected ones. Snap the highlighted verts together and then extrude these new edges and snap them to the very back two edges. Snap the verts together and split this new face, snapping the floating vert to the side vert (**Fig59**).

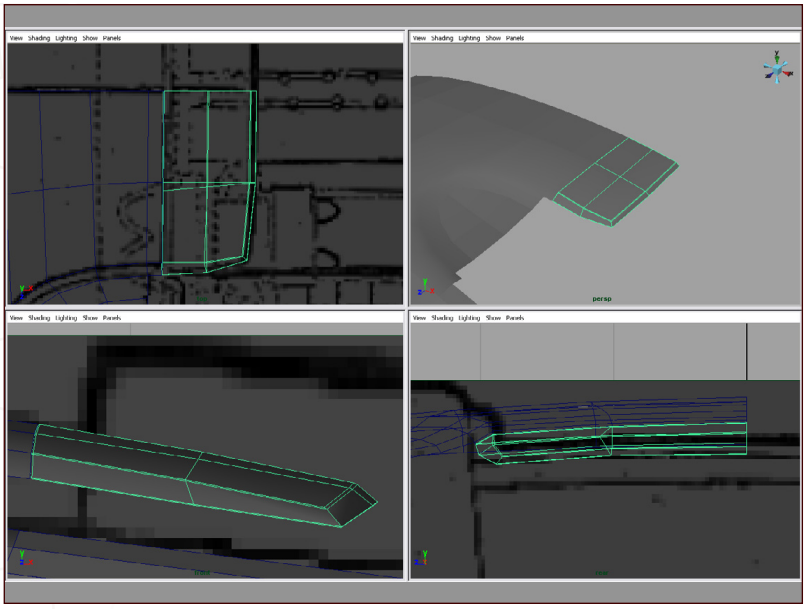
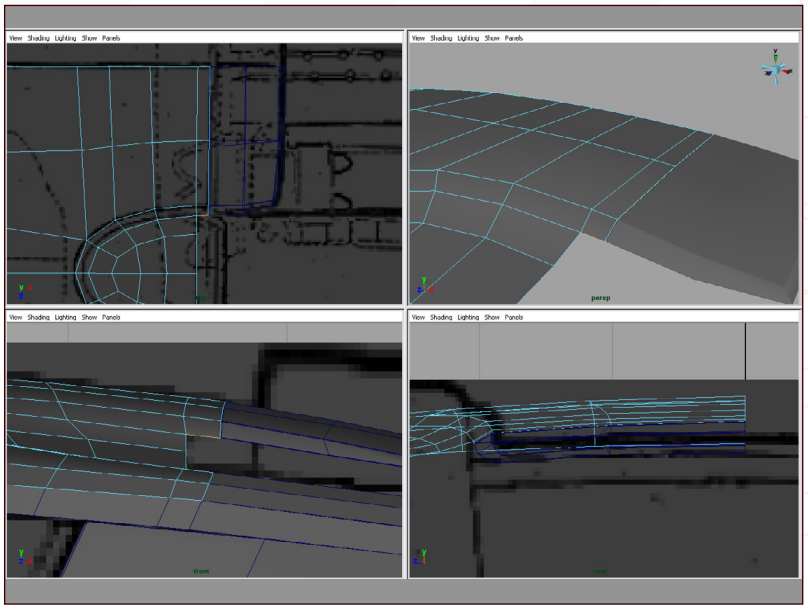


Fig 60

Now bevel the whole box-shaped object and apply a Smooth Proxy (**Fig60**).

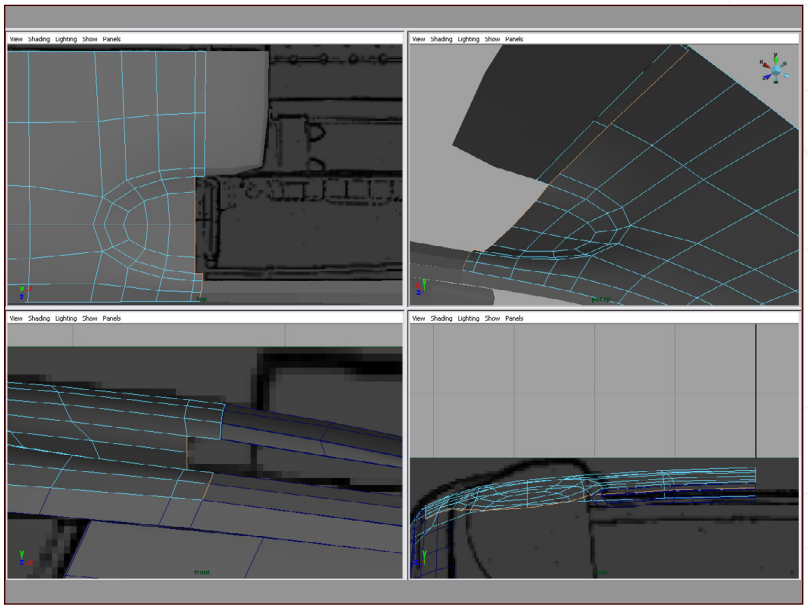
Grab the edge on the roof and extrude it twice towards the centre of the car. Line it up with the roof plate and then append polygons to fill in the gaps (**Fig61**).

Fig 61



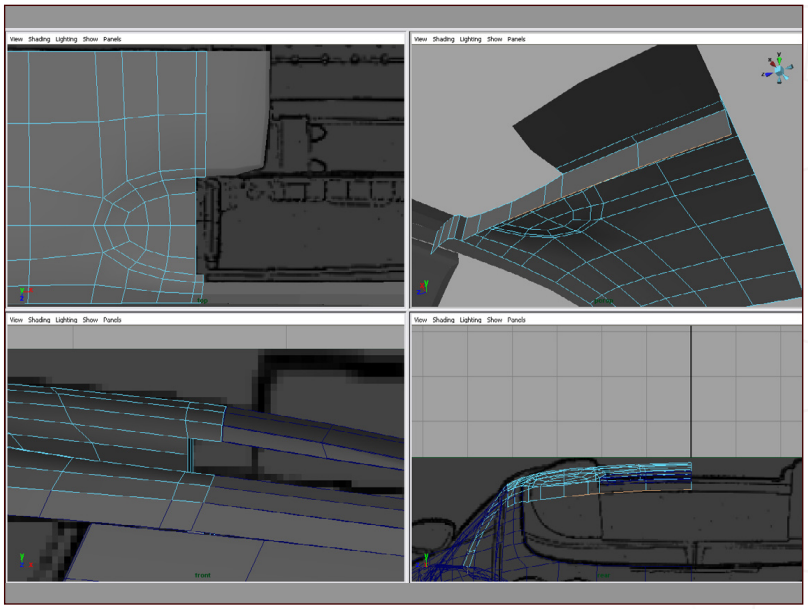
Select the highlighted edges. Note that this selection goes under the plate. Extrude downwards and shape the edges that will be visible ready for the window (**Fig62**).

Fig 62



Extrude these edges backwards first, and then upwards to create a lip for the window. Grab the remaining outer edges and extrude down using the normal Z-axis, remembering to snap the verts together at the corner to close the gap (**Fig63**).

Fig 63



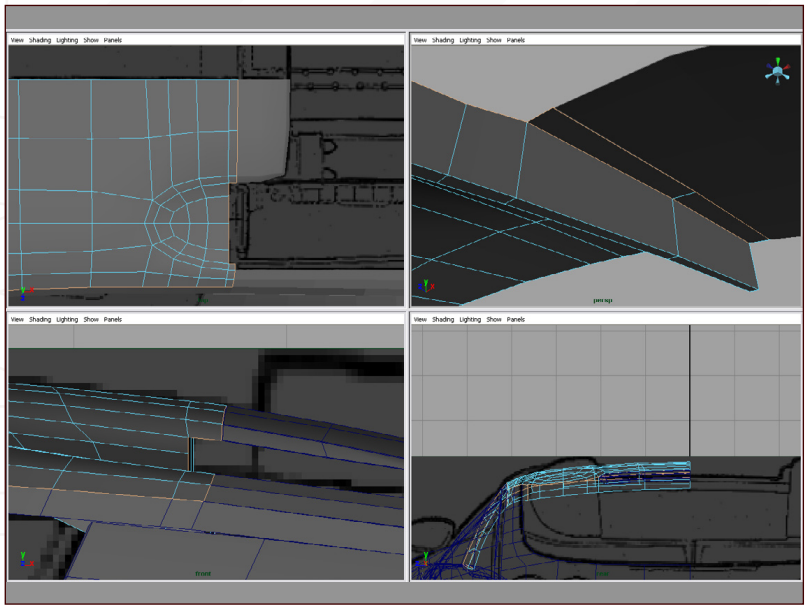


Fig 64

Select all of the edges, including the corners and the edges around the roof plate area, and bevel them to create the grooves between each body panel. Bevel the edges that make up the lip for the back window. You will probably end up with some nasty mesh errors at the ends, but don't worry about this because the big back air intakes will cover all of this up and any viewer will never see this problem (**Fig64**).

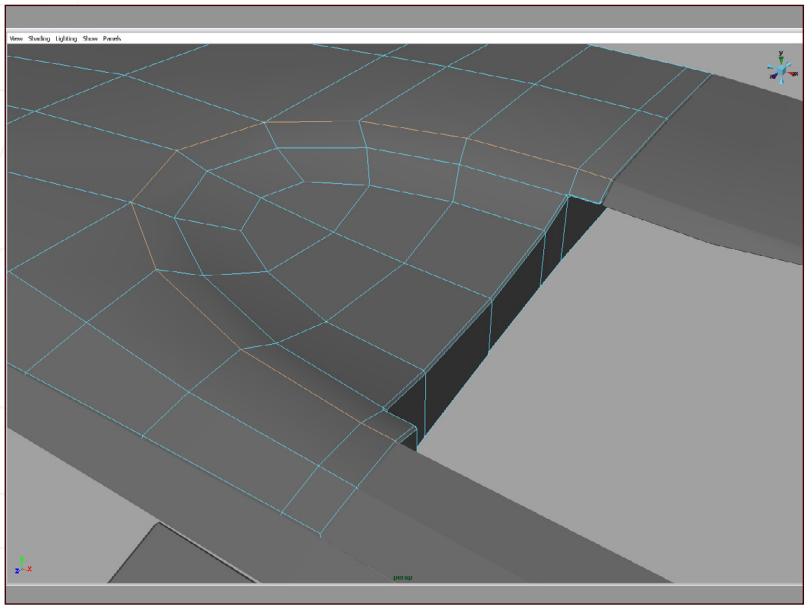


Fig 65

Select the edges around the dip at the back and bevel these. Now simply perform the usual clean-up, snapping any verts that are causing errors and pulling any gaps in panels closer together, then the roof is done. This has actually been quite a tricky piece so, as always, take your time to get it looking right (**Fig65**).

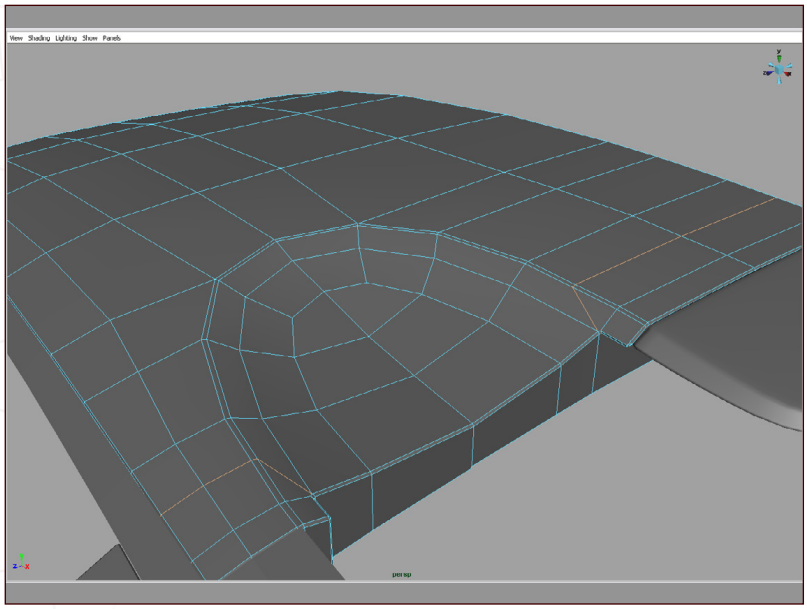
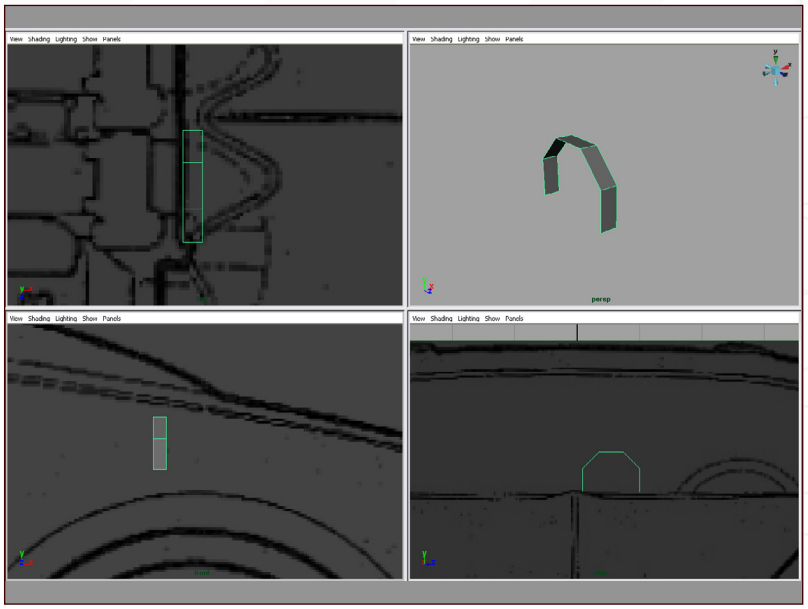


Fig 66

To clear up the pinching at the corners of the roof dip, I added the highlighted edges. As always, I applied a Smooth Proxy quite early on and kept jumping between the smooth and unsmooth mesh while tweaking (**Fig66**).

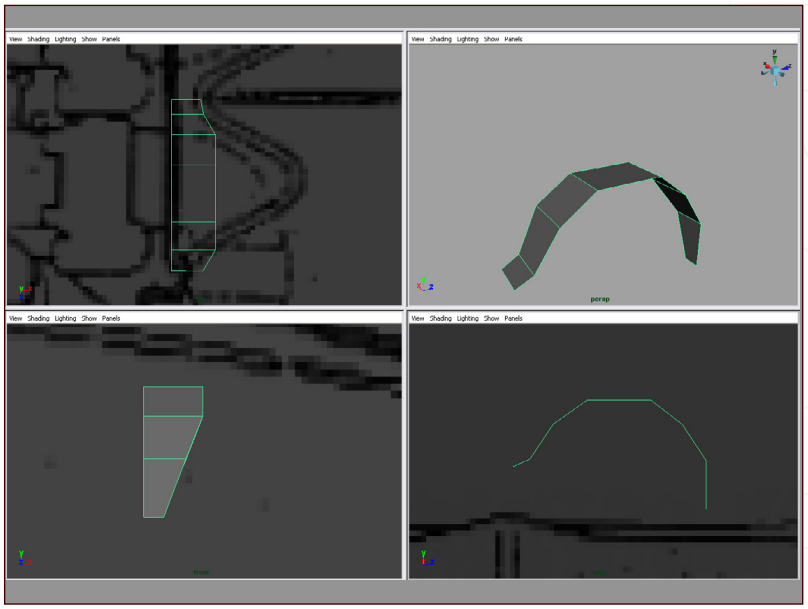
Let's concentrate on finishing up the back of the car now, and then we'll model the bonnet and give the front bumper some depth. The back of the car is very tricky indeed and caused me a major headache, so make sure you have lots of references and take your time. The pieces that were causing me the most trouble were the two humps that cover up part of the engine, so I started modelling those pieces and built up from there. Bring in a cylinder primitive and change the subdivision axis number to a value of 8. Rotate 90 degrees in the Z-axis and then 22.5 degrees in the Y-axis. Scale and position the cylinder at the edge of the hump and delete the bottom 3 faces and the 2 central faces, then you should have something like what's shown (**Fig67**).

Fig 67



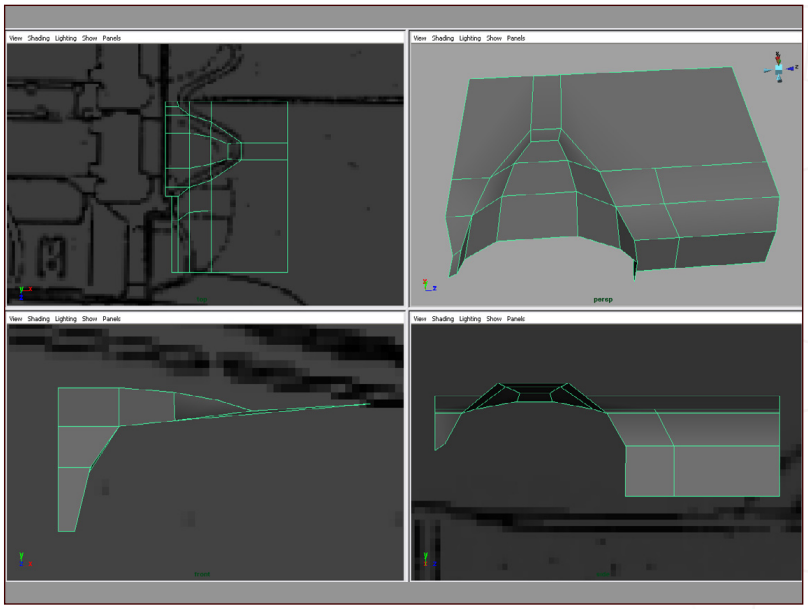
Create two more splits along the top face and then shape the object using your blueprints and reference images into something similar to **Fig68.**

Fig 68



Continue to build this piece out in all directions (**Fig69**).

Fig 69



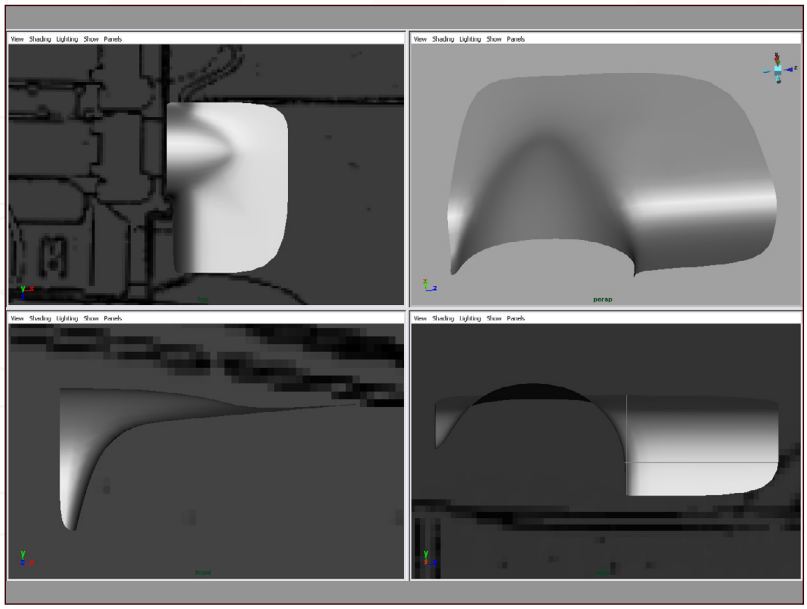


Fig 70

It is a very good idea to apply a Smooth Proxy at this point just to make sure your shape at least resembles what it should. Ignore the fact that the mesh isn't all quads – that will be fixed later. The general shape is what we are after now. Applying a smooth at an early stage in any model always gives you a good idea of how your model is shaping up, and is a technique I use a lot (**Fig70**).

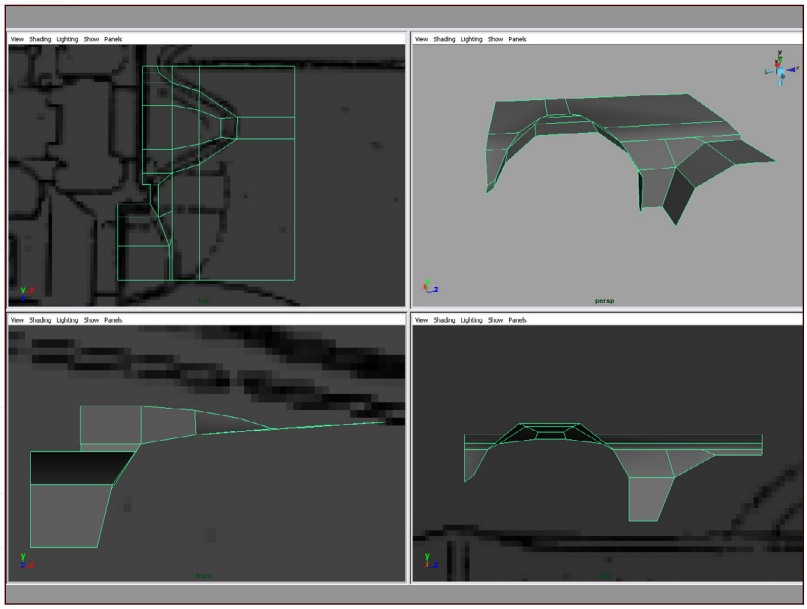


Fig 71

Add in the next hump and continue to shape the piece, looking at your smooth mesh often. Just remember to keep shaping your verts all the time. Every model needs lots of tweaking to get it looking right (**Fig71**).

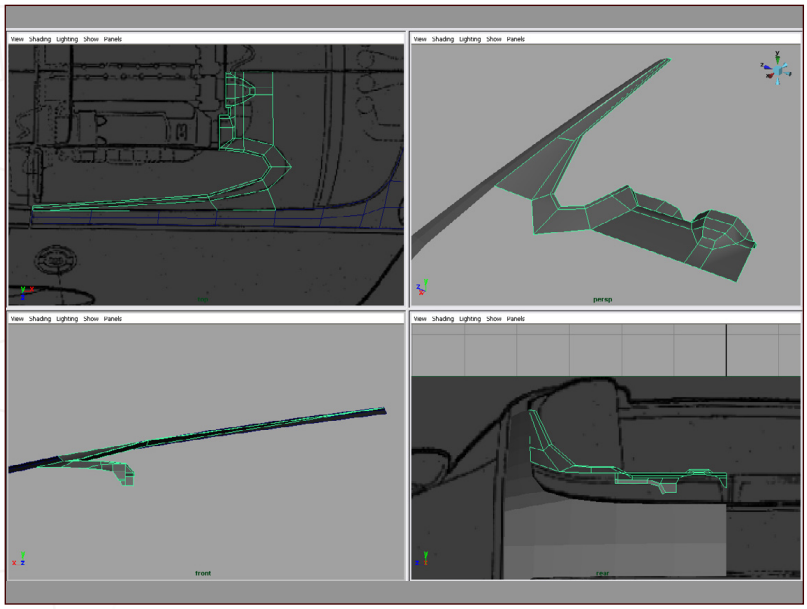
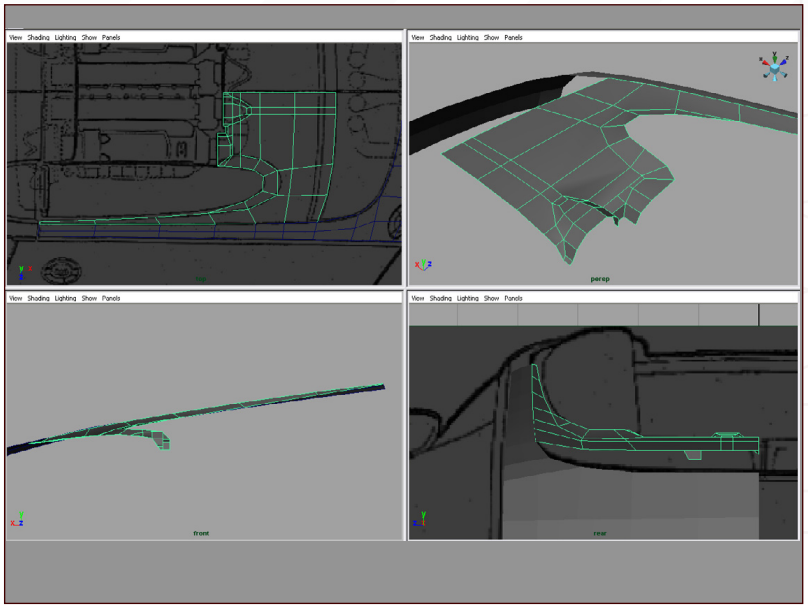


Fig 72

Start to create the curved hump that runs around the air intake and all the way up to the roof, making sure to use your existing panels as a guide (**Fig72**).

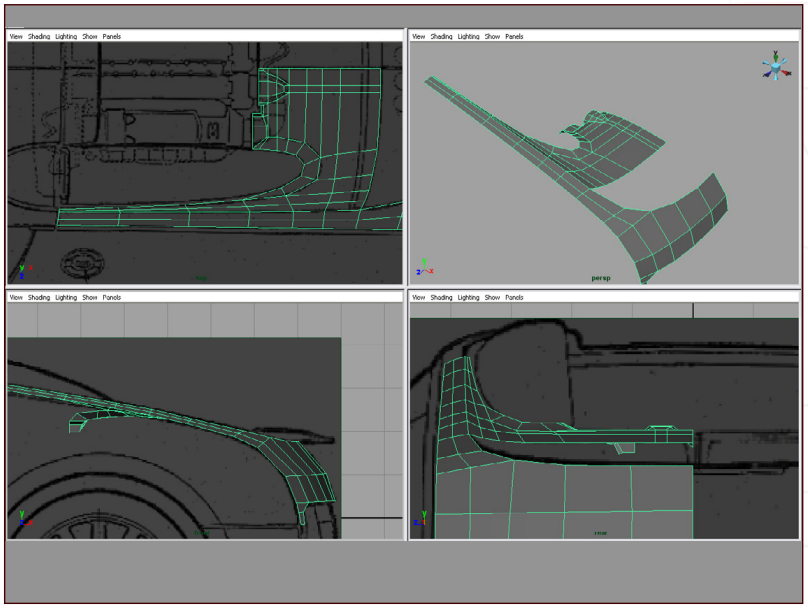
Continue to shape this panel and add extra geometry until it looks similar to **Fig73**. Note that some edges and faces have been removed and/or merged, but by now you should have a good idea of my workflow and should have no problems following along with the pictures.

Fig 73



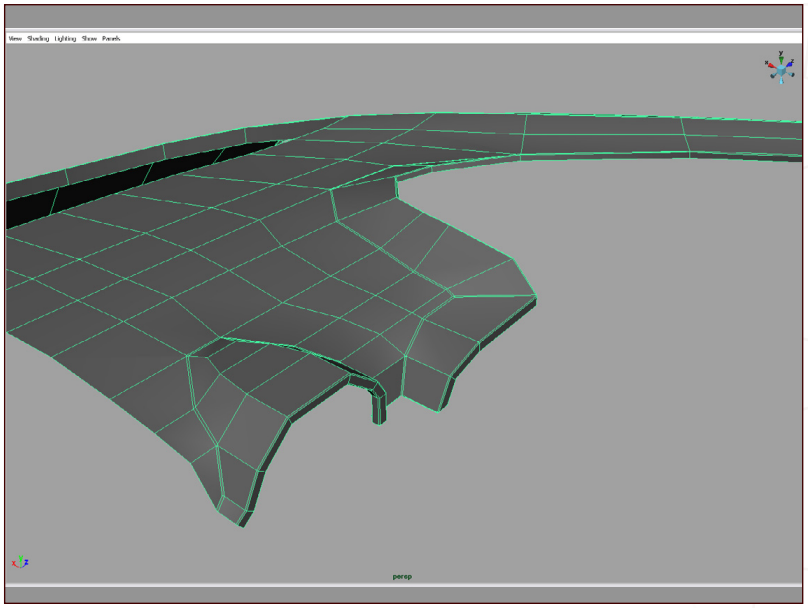
We can now attach this back panel to our existing back panel and merge the overlapping verts. Extra edges have been added and shaped to help the flow of the mesh – just keep checking your smooth version (**Fig74**).

Fig 74



Now, as always, grab all outer edges, then extrude and bevel edges. The following pictures show which edges were bevelled (**Fig75**, **Fig76** and **Fig77**).

Fig 75



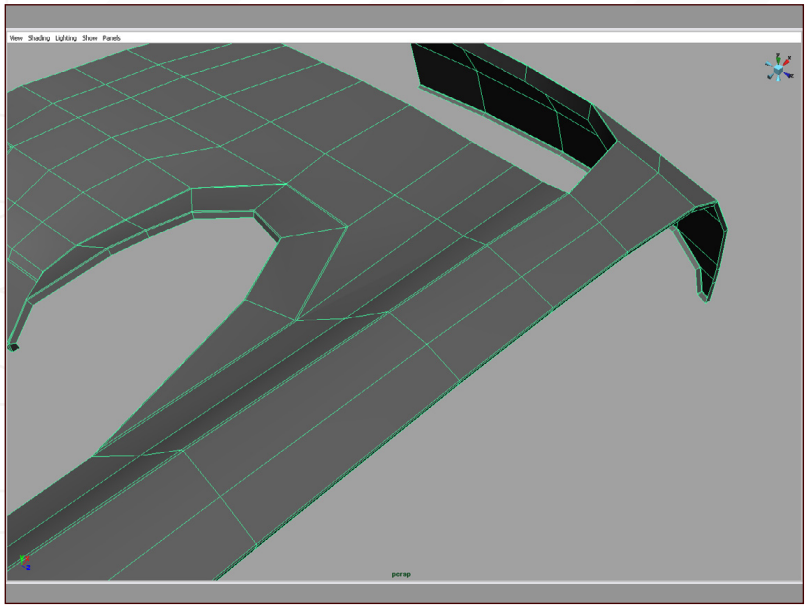


Fig 76

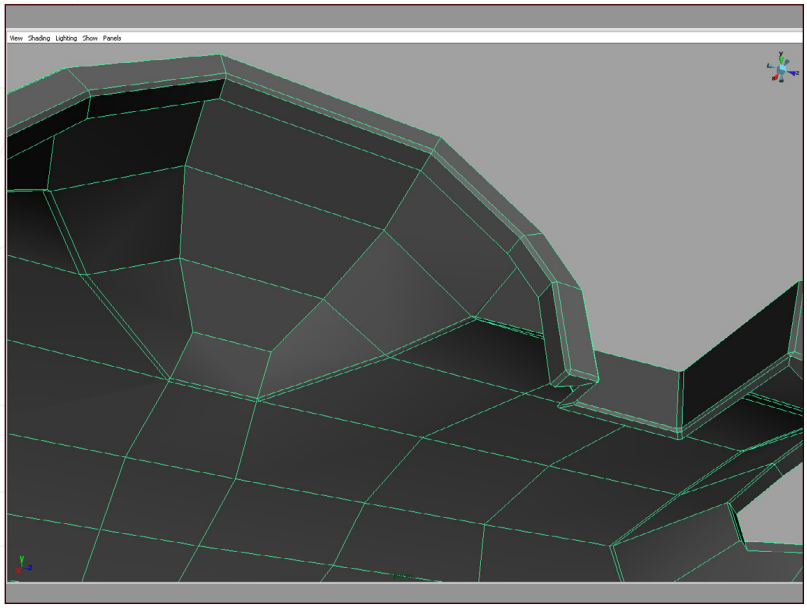


Fig 77

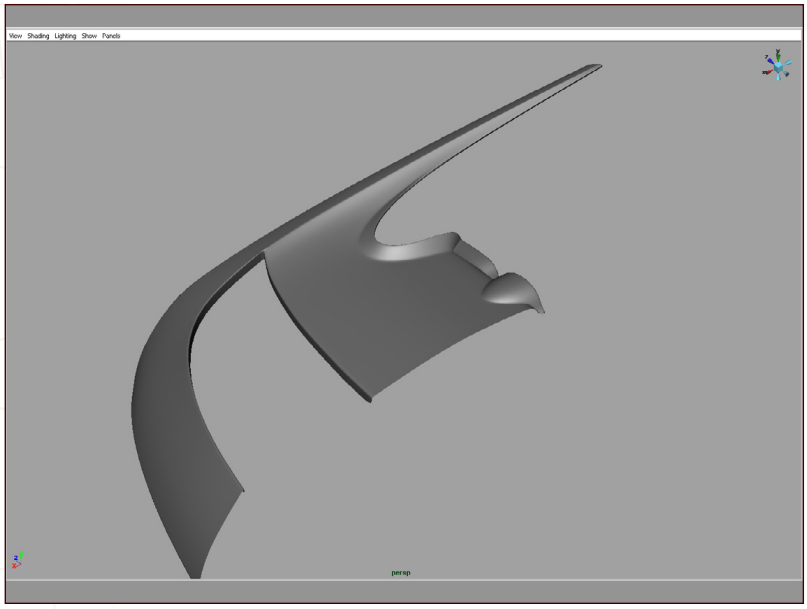
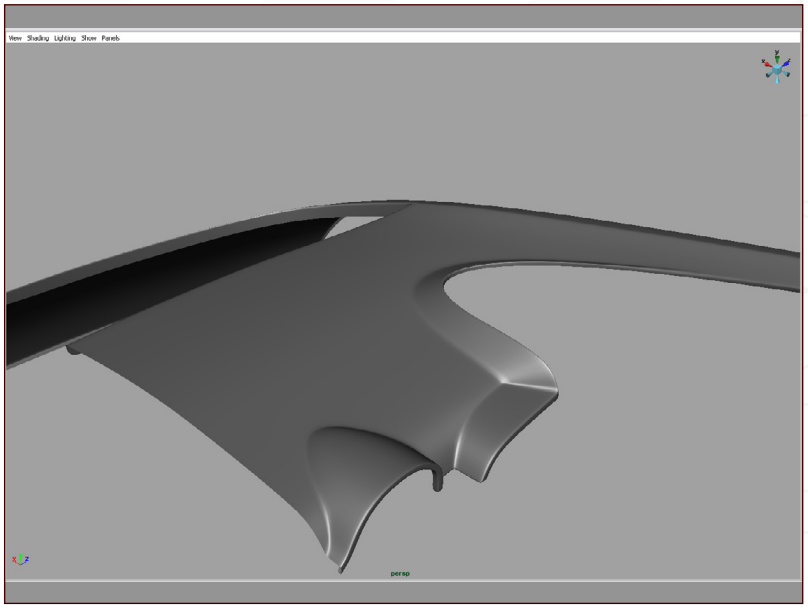


Fig 78

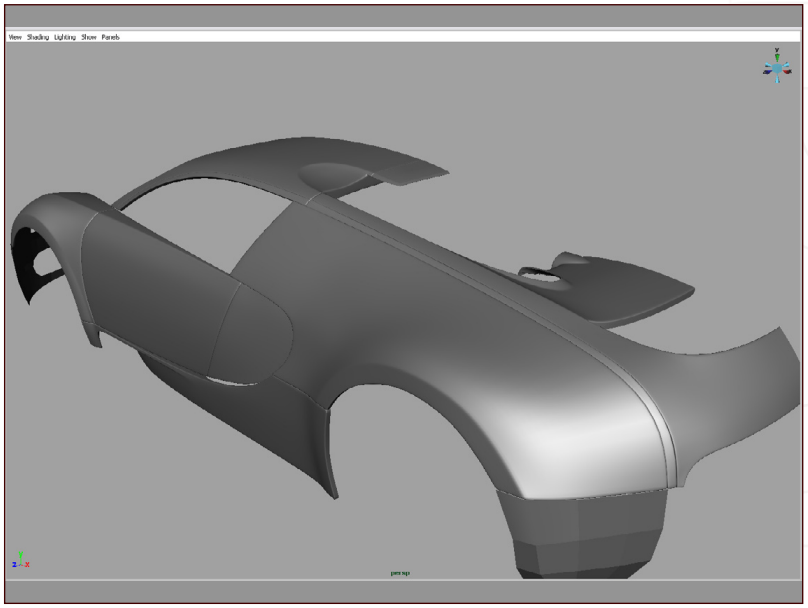
Here's how my smooth version looks after a clean-up and final shaping (**Fig78** and **Fig79**).

Fig 79



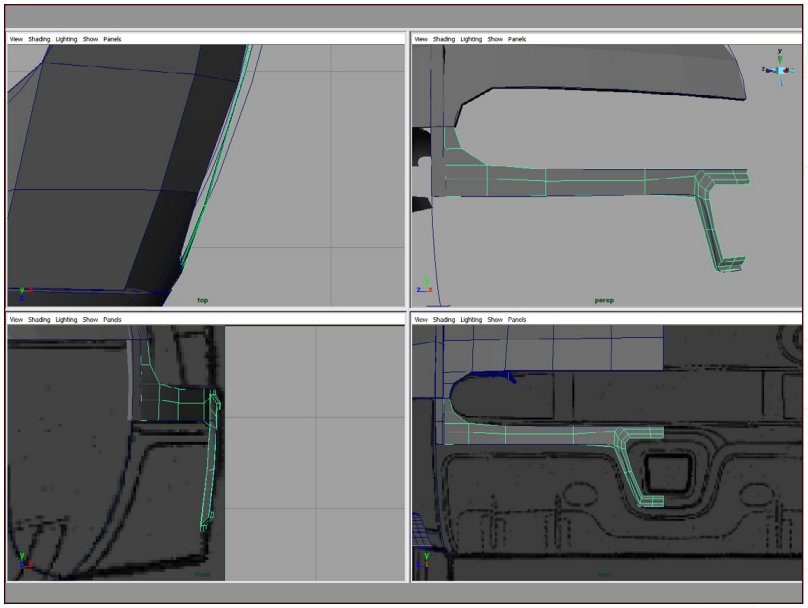
Give some depth to the thin plates running up the side of the car. Simply grab all outside edges and extrude downwards, then bevel them. Some tidying up may well be required, so just work your way along groups of verts and move them into place so that everything is lining up when the car is smoothed. Create another one of these plates at the back of the car, underneath the other plate that runs to the back of the car. Extrude and bevel, as usual. You may need to add some curvature to this piece once we've finalised the other back pieces (**Fig80**).

Fig 80



Create the back piece of the car by snapping to your guide curves. You should end up with a similar shape to the back panel directly above it. Build all the way to the panel that the exhaust sits in, shaping as you go. Create the exhaust casing with some scaled extrusions of faces and then continue this process until you have something like **Fig81**. Extrude the top edges straight back so they line up with the extrusion of the panel above, and then extrude straight back again a bit more.

Fig 81



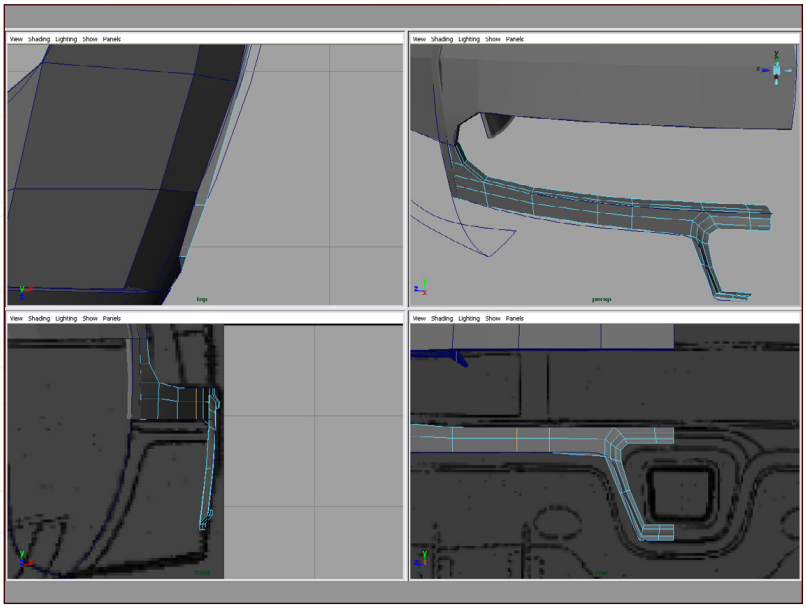


Fig 82

Make a cut that will outline the strut that cases the number plate. Outline the thinnest part of this strut with your verts then extrude the edge upwards. Extrude the edges at the right side of this strut and merge the strut vert to its corresponding vert (**Fig82**).

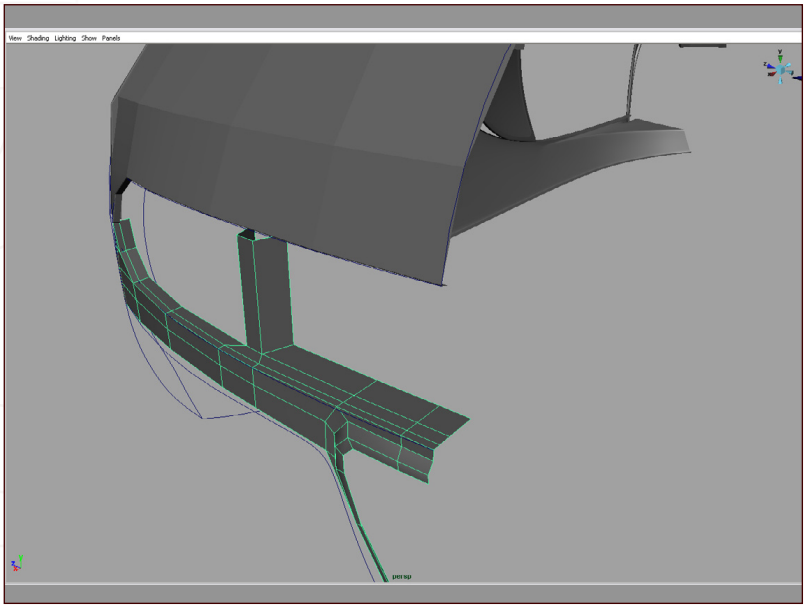


Fig 83

Shape the new verts to follow the curve of the bumper (**Fig83**).

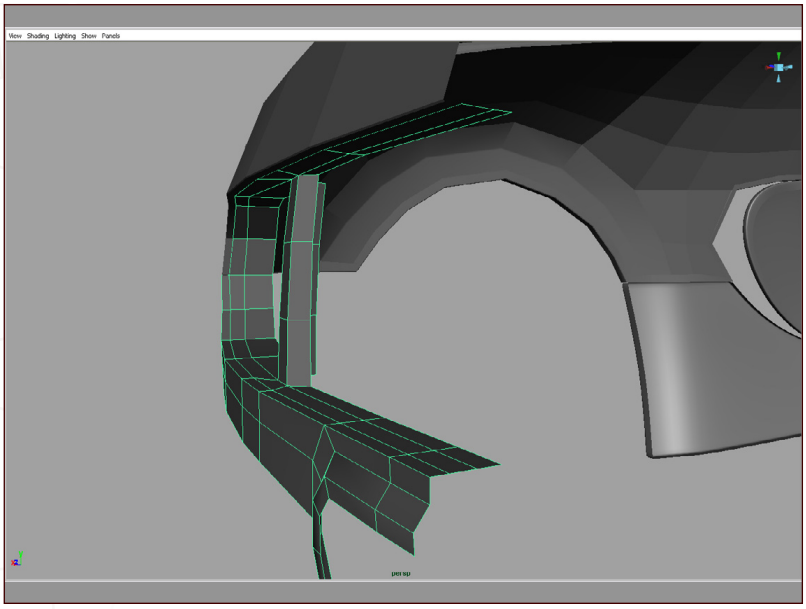
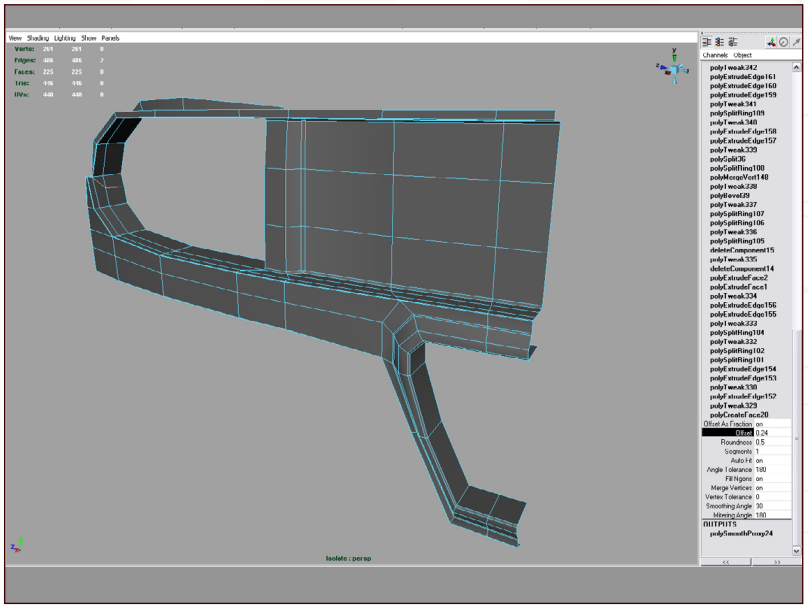


Fig 84

Repeat the above steps for the other side of the strut and then extrude the inner part of the bumper around the rim of the panel above it (**Fig84**).

Perform the usual extrudes and bevels. The highlighted edge was added to the corner of a bevel to tidy that area. Remember to give a lip to the back panel piece where the bumper sits behind (**Fig85**).

Fig 85



All of this can be seen in the smooth versions (**Fig86**, **Fig87** and **Fig88**).

Fig 86

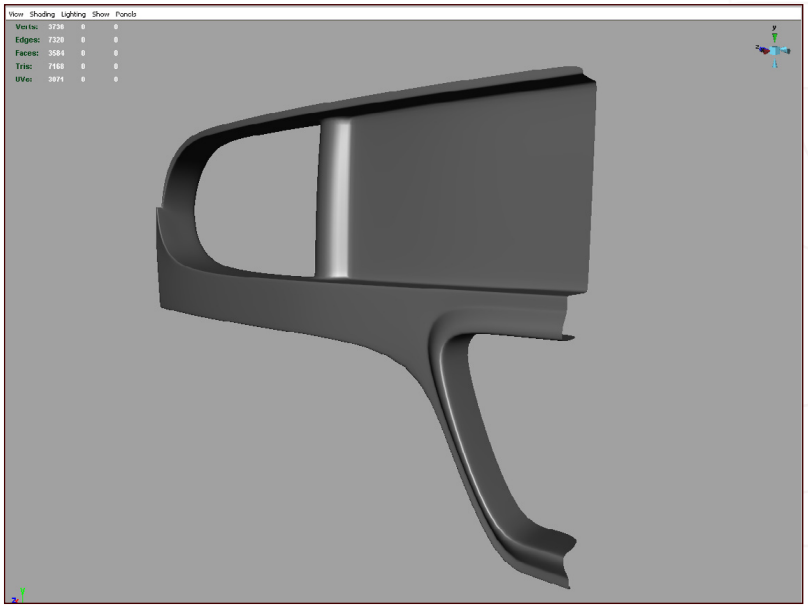
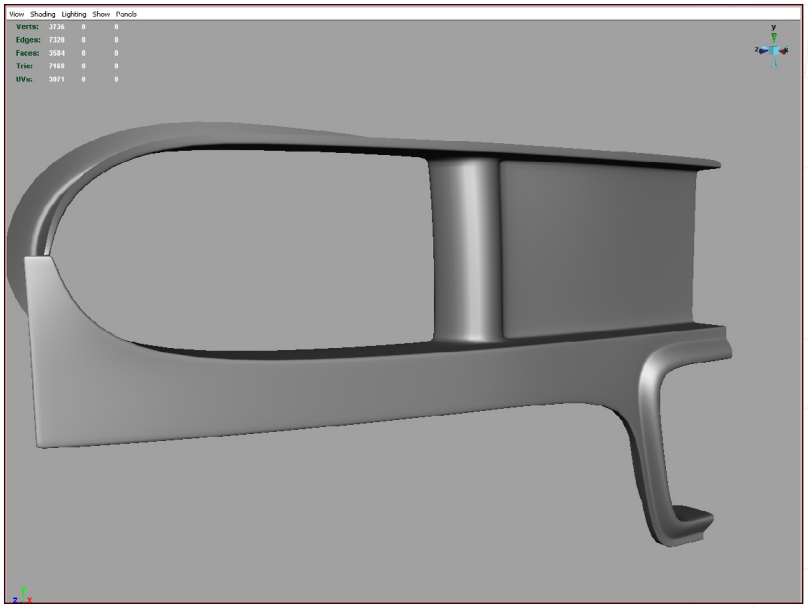


Fig 87



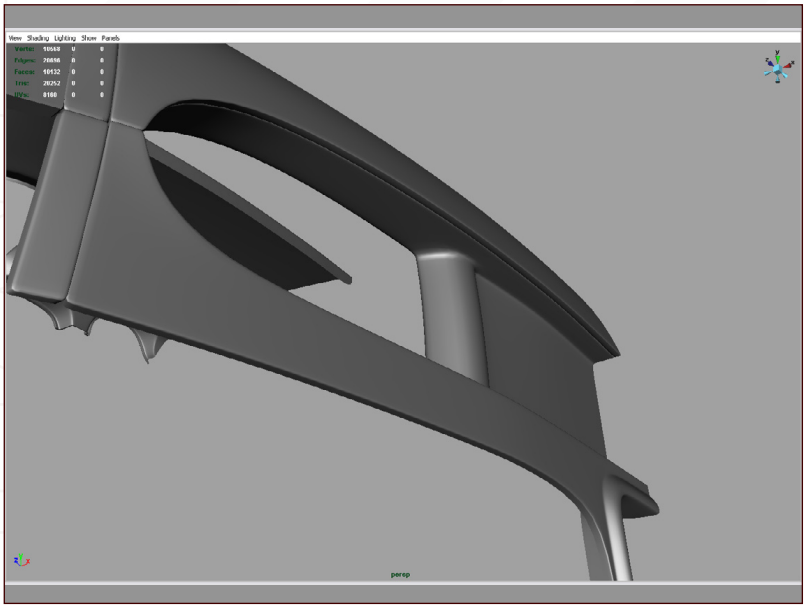


Fig 88

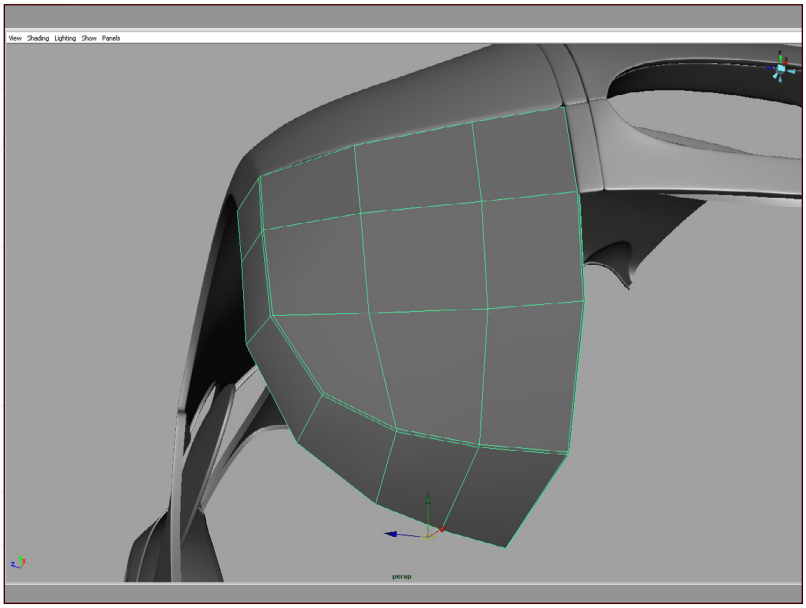


Fig 89

For the final part of the back of the car, the lower rim, just grab all the edges and extrude and bevel as before. Remember to continue the bevel on from the rear fender (**Fig89**).

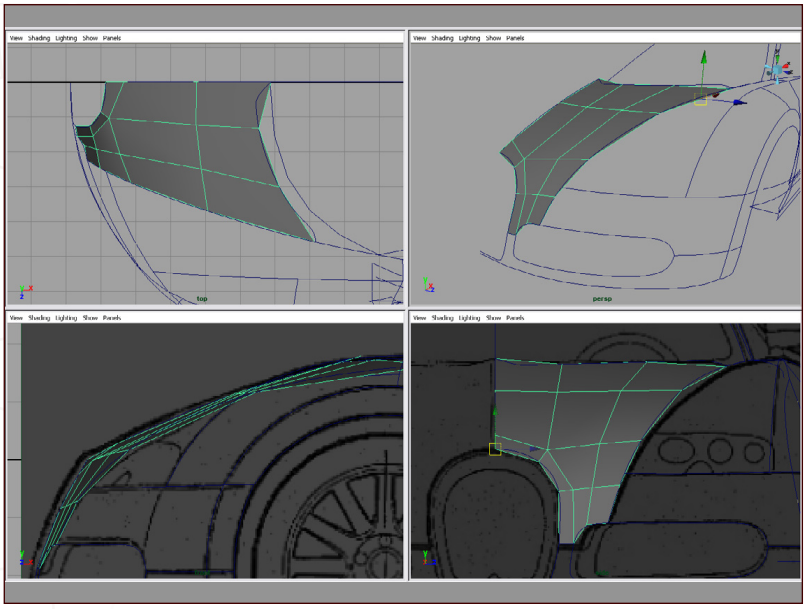
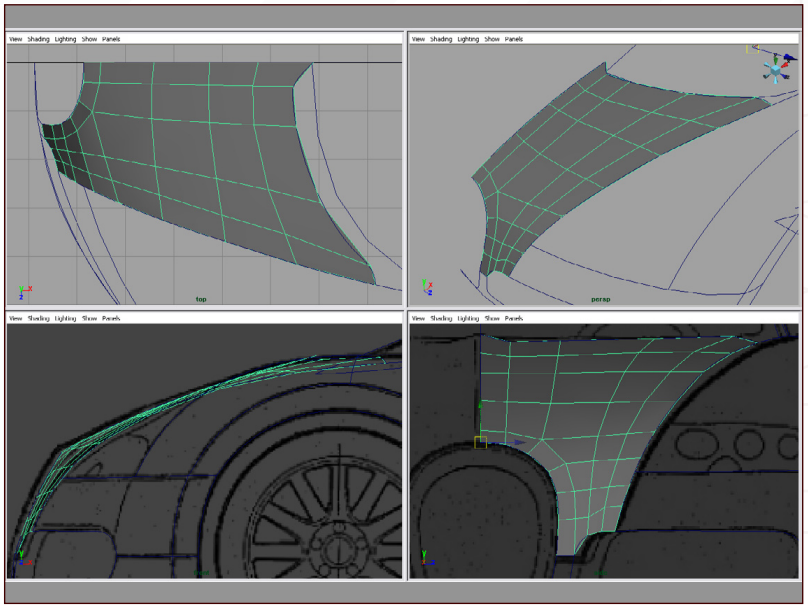


Fig 90

The bonnet is another (and the last) tricky piece. Start off by laying down some polygons using curve-snapping, extrusions and appending to polygons to get a similar layout to what is shown in **Fig90**. Although it looks somewhat messy, once you apply a Smooth Proxy to it, you will see that it is looking very close to how it should look with just a few polys. So, with a little bit of clean-up and more edges added, it should look fine.

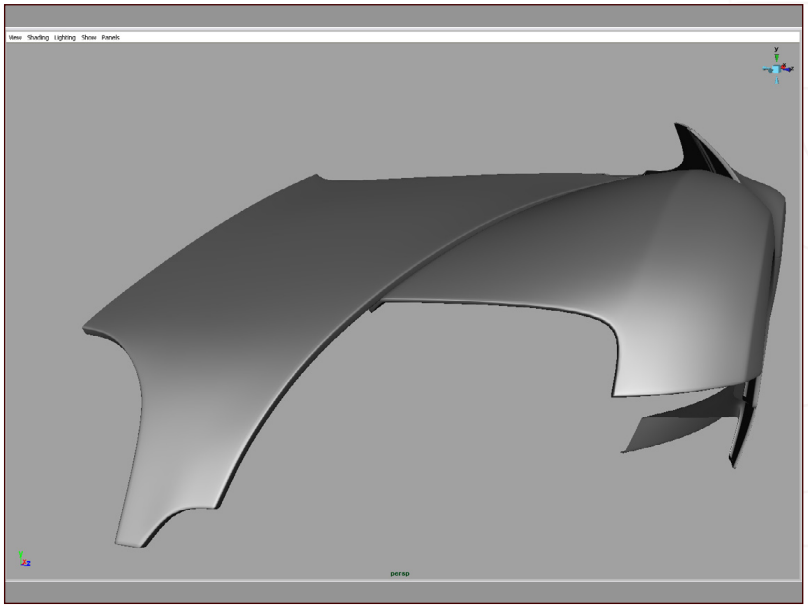
Keep adding edges and slowly shaping the mesh. Make sure to use your references often, along with your blueprints and curves, and keep tweaking the mesh until it looks right. Sight along rows of verts and keep checking your smooth version. You could even try a quick extrude, bevel and mirror test to make sure that the whole bonnet is looking good (make sure you remove these though before you tweak the mesh further) (**Fig91**).

Fig 91



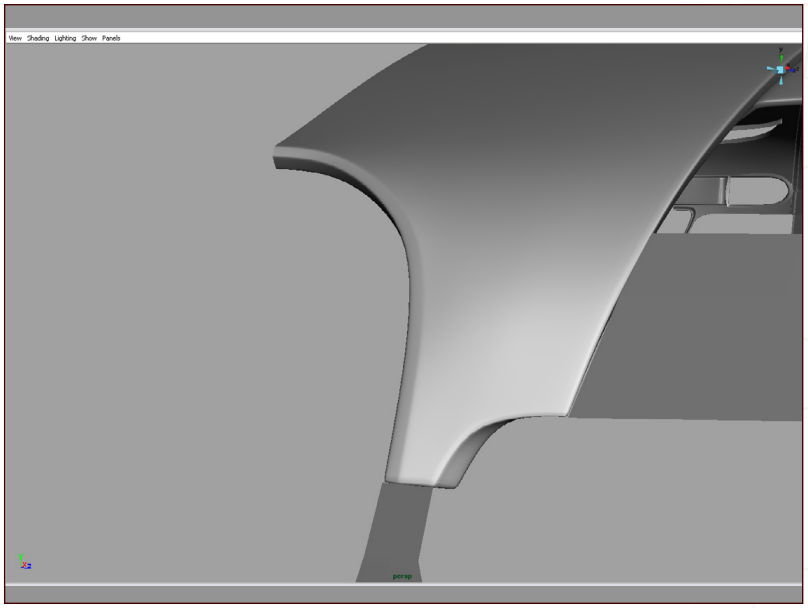
Apply a smooth and bevel and do any final tweaks that need doing. Also make sure you sit the bonnet just above the front fender and remember to give the bonnet some depth underneath – or even model the underside completely if you're planning on lifting the boot (**Fig92**).

Fig 92



Don't forget to add a bevel around the opening for the grill, and pull the corner of the bonnet out a bit by the front side hole (**Fig93**).

Fig 93



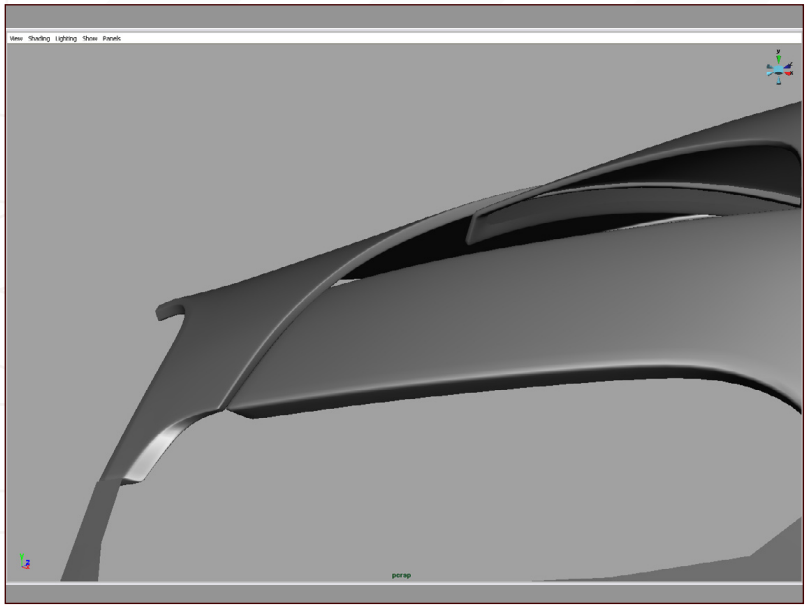


Fig 94

Last couple of bits now! The upper bumper bit can be completed with the usual extrude and bevel. Just make sure that the bevel along the bottom edge is pulled back quite a bit, ready for the grill. Also, tuck this piece just behind the bonnet mesh and bevel the edges around the wheel arch. Same drill for the lower bumper piece (**Fig94**).

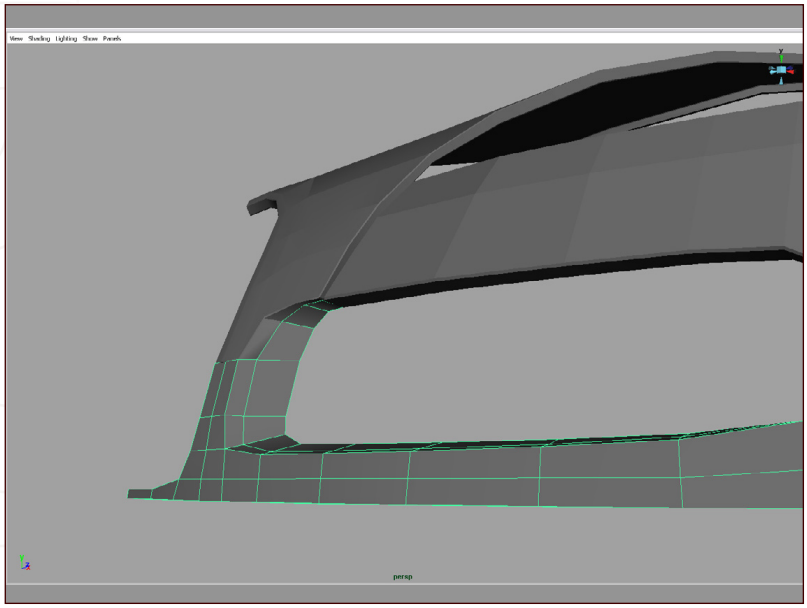


Fig 95

The lower part of the side vent needs to be extruded back twice so that it can wrap around the bonnet and next to the upper bumper piece (**Fig95**).

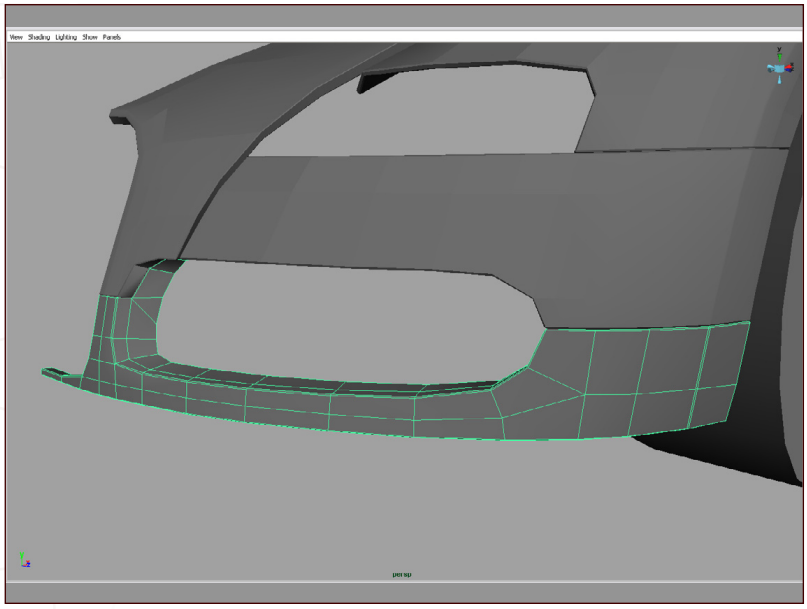


Fig 96

The final mesh can be seen in **Fig96**. An extra edge was added at the bevel (of the side vent) to help the smooth mesh.

Let's call it a day there. We'll look at mirroring the pieces and creating the ridge down the middle of the car in the next part. We'll also prepare the car for the insertion of the accessories and make a start on creating the accessories. The last thing to do once you're happy with your meshes, is to delete history on the unsmoothed meshes (**do not** delete history on the smooth meshes or you will lose your unsmoothed mesh and your ability to tweak easily).

I hope you've enjoyed the tutorial so far and have followed along OK. It's been a long one this time! I hope the main things I've shown you are the importance of the flow of the geometry, how you shouldn't be afraid to restart parts of your mesh or modify them, and how to add depth and work with smooth meshes. I'll leave you with a few pictures of how half of the car should look so far (**Fig97** and **Fig98**), and I'll see you in the next part.

Fig 97

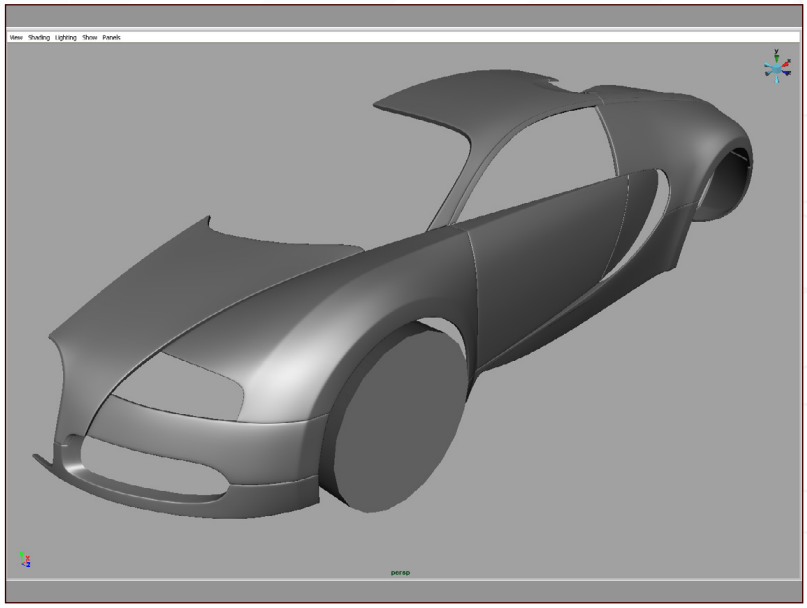
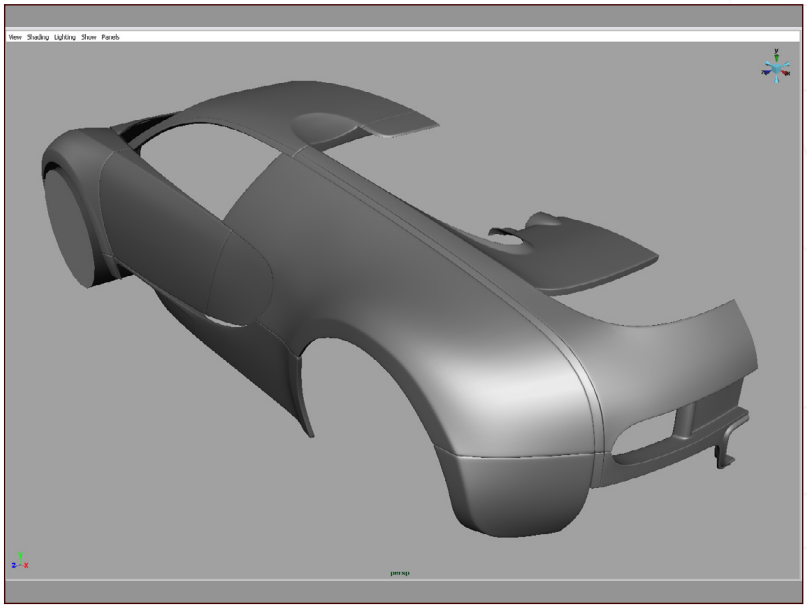


Fig 98



BUGATTI VEYRON: PART 2

Tutorial by:
ANDREW HOBSON
For more from this artist, contact them:
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Bugatti Veyron
car modelling series

SOFTIMAGE | XSI

The series will cover an in-depth and comprehensive guide to modelling the amazing Bugatti Veyron car, from start to finish, and will focus on the key techniques and stages involved in building the chassis, as well as details such as the windows, lights, vents, petrol caps, engine parts and so on. We will then move on to creating the wheels, including tyres and hubcaps, before going on to building and incorporating an interior, namely the dashboard and seating. The series will proceed with a section on creating and applying materials for the numerous parts of the car, such as the paint work, chrome, rubber and glass, before concluding with a tutorial devoted to setting the scene for a finished render. The final part will cover the importance of a good lighting rig and light parameters, as well as the importance of a camera and the integral part that the rendering settings play in showcasing the model for a portfolio.

This series aims to show a comprehensive guide to creating a finished car for people new to this type of exercise, but is not suitable for beginners who are not familiar with using 3D software. The tutorials do not detail every single step of adding individual edge loops and vertices, but does endeavour to outline each important stage and explain the crucial techniques necessary to following the exercise.

The schedule is as follows:

Issue 029 January 2008
MODELLING THE CHASSIS - BASICS

Issue 030 February 2008
MODELLING THE CHASSIS - DETAILS

Issue 031 March 2008
LIGHTS, RADIATOR GRILL & VENTS

Issue 032 April 2008
WHEELS, TYRES & RIMS

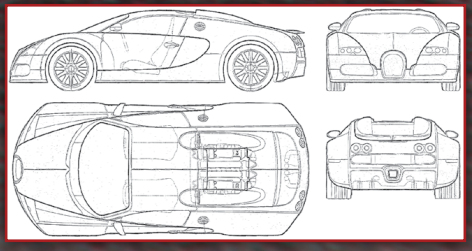
Issue 033 May 2008
INTERIOR

Issue 034 June 2008
THE MATERIALS & FINISHES

Issue 035 July 2008
LIGHTING SET UP & RENDER

ENJOY ...

Blueprints available here:



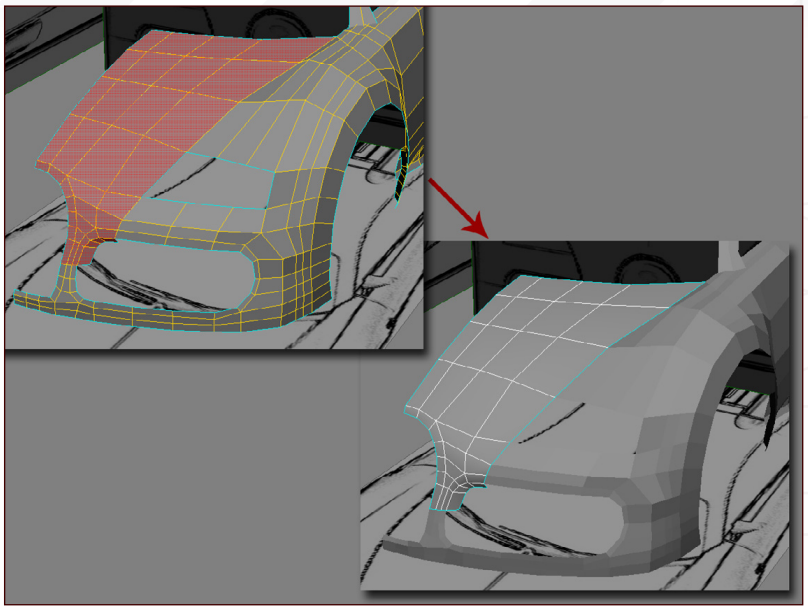
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Modelling the Chassis Part 2 - Details

Welcome to the second part of this car modeling series. This month, we'll take a look at how you can finish off modeling the basic shell and add more panels.

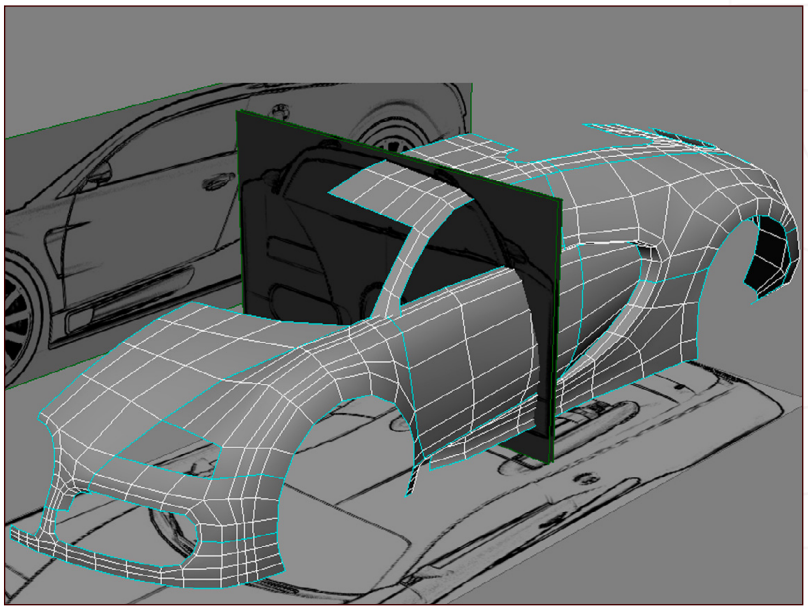
Let's start with extracting the shell to it's main panels. First, select the front trunk door's polygon and Extract Polygons (Model Module/ Create/Poly. Mesh/) (**Fig01**).

Fig 01



Let's detach the other parts in the same way (**Fig02**).

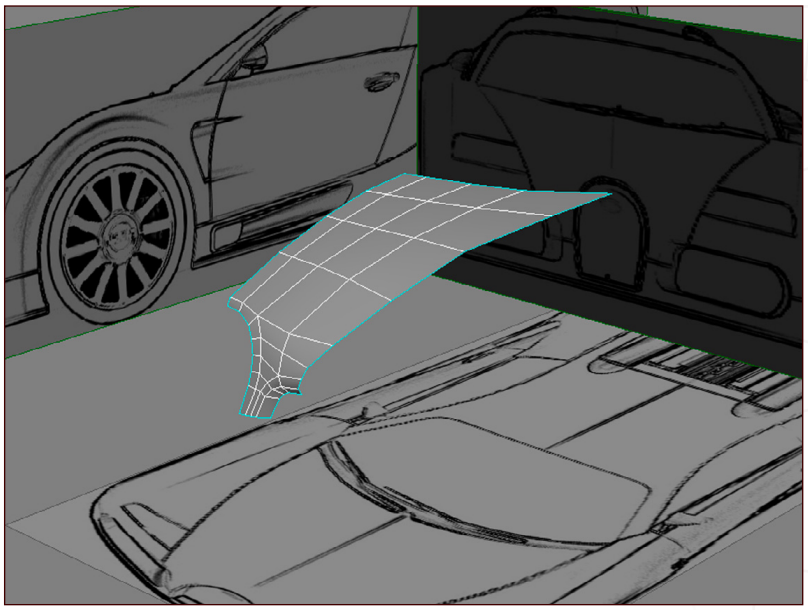
Fig 02



Next, add more detail to the front trunk door to hide the unnecessary parts (**Fig03**).

Now lets start rimming!

Fig 03



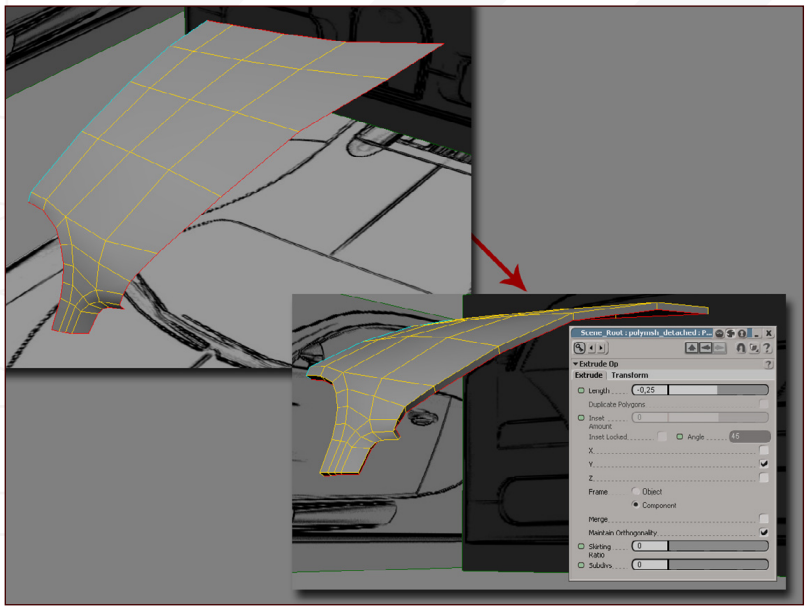


Fig 04

Select the edges that we want to rim. This means every border edge, except the ones along the symmetry axis.

The next step is the Extrude Along Axis (Model Module/Modify/Poly. Mesh/) command. Turn off the Merge in the appearing window; at the Frame select Component, while the Length is -0,25 (**Fig04**).

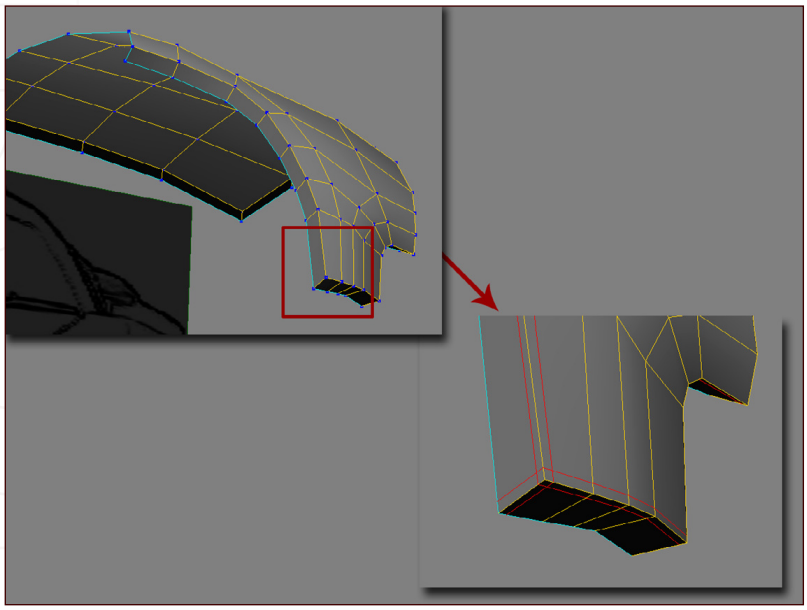


Fig 05

The smoothness depends on the distance between the two edges. If they are closer, it's going to be more sharper after the smoothing. Because of this we'll add more edges to the border.

Using the Split Edge Tool (Model Module/ Modify/Poly. Mesh/) with the middle mouse button means we can easily create parallel edges (**Fig05**).

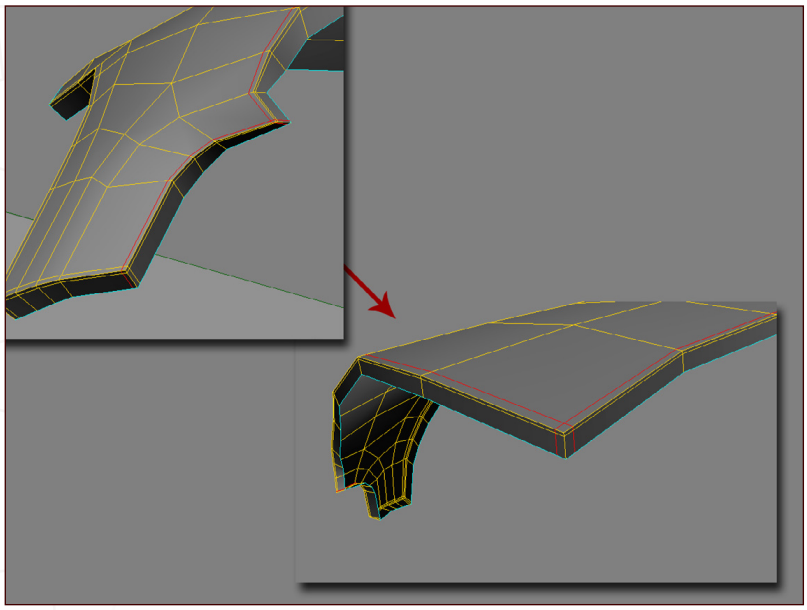


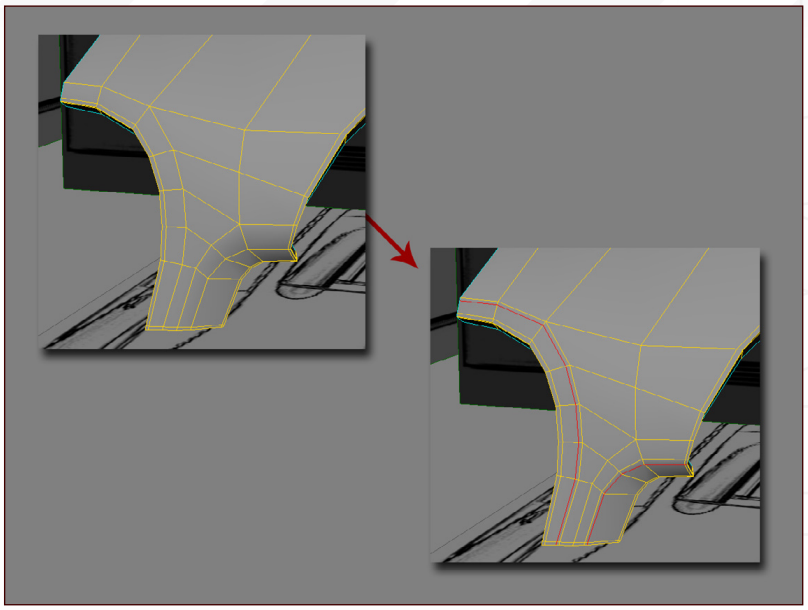
Fig 06

Along these edges the smoothing is sharper, which is how we can control the bending of the surface.

Create triple edges at the other corners in the same way (**Fig06**).

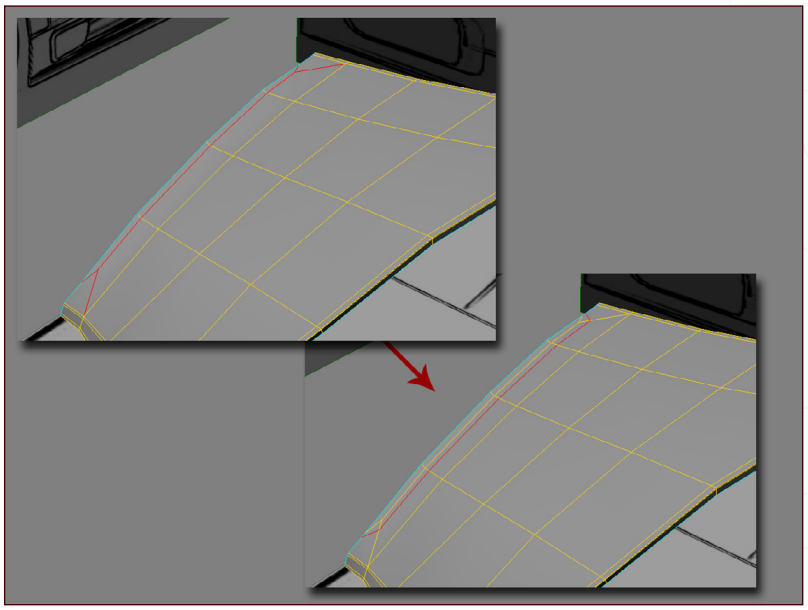
We can see from the reference photos that the front of the trunk has two sharper edge loops. Cut some parallel loops for this place too (**Fig07**).

Fig 07



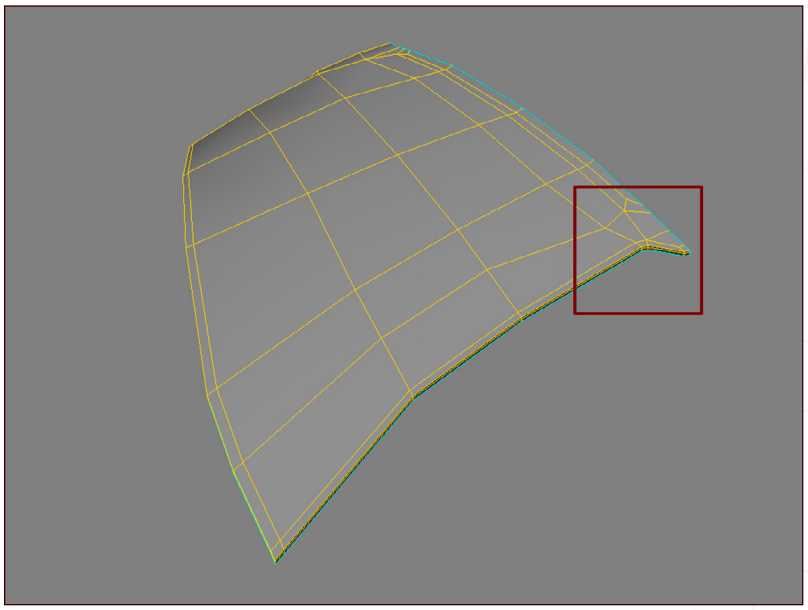
Add some edges to the top of this trunk door to create the ballooning along the symmetry axis. Next, add more edge loop around this ballooning to create the stronger impression that is shown on the reference photos (**Fig08**).

Fig 08



Then do the same thing with the triangle at the top of the trunk door (**Fig09**).

Fig 09



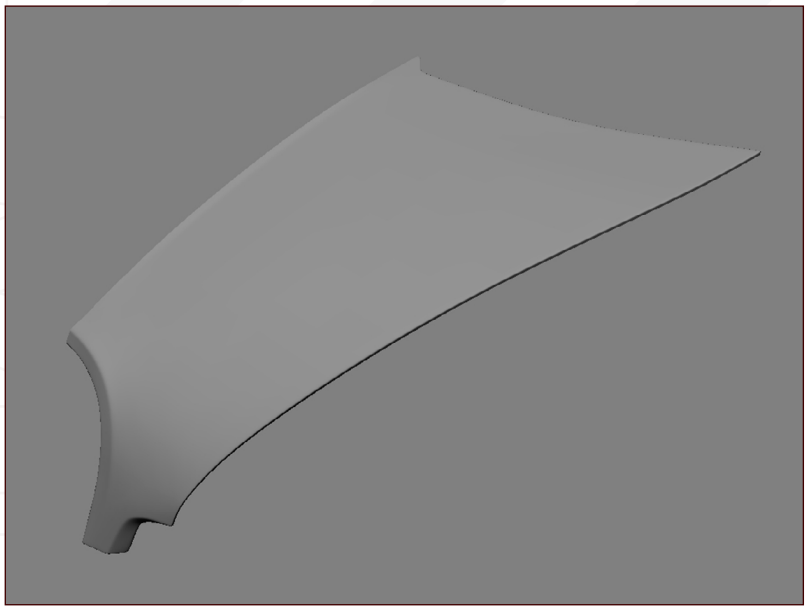


Fig 10

Now start the smoothing. It's unnecessary to add a Subdivision-t (Model Module/Create/Poly. Mesh/); it's enough to push the [Num+] button twice to add 2x smoothing onto it. We can still move forward with modifying the object because we can take off the smoothing anytime by pressing the [Num-] twice (**Fig10**).

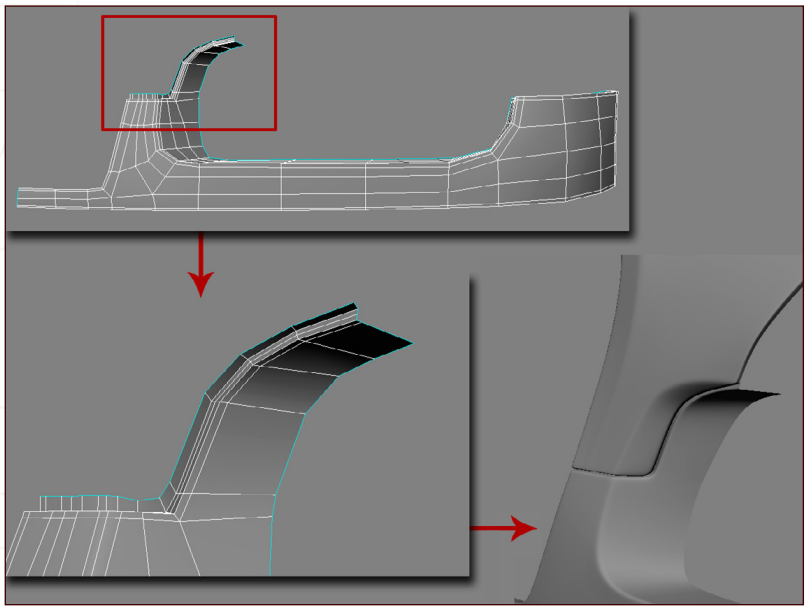


Fig 11

Don't forget that it's worth making the geometry with quad polygons only and making the edge loops nearly parallel to the curves because this will make the smoothing perfect.

With the methods I've shown previously, add some detail and edges to the border for the front air inlet.

We can see on the references photos that the trunk door is deepening into this panel, so create an indenture this way (**Fig11**).

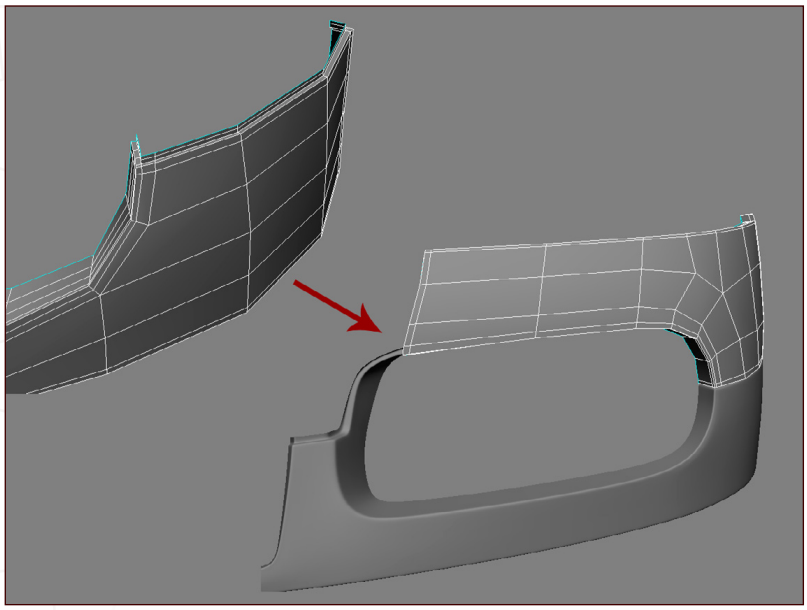


Fig 12

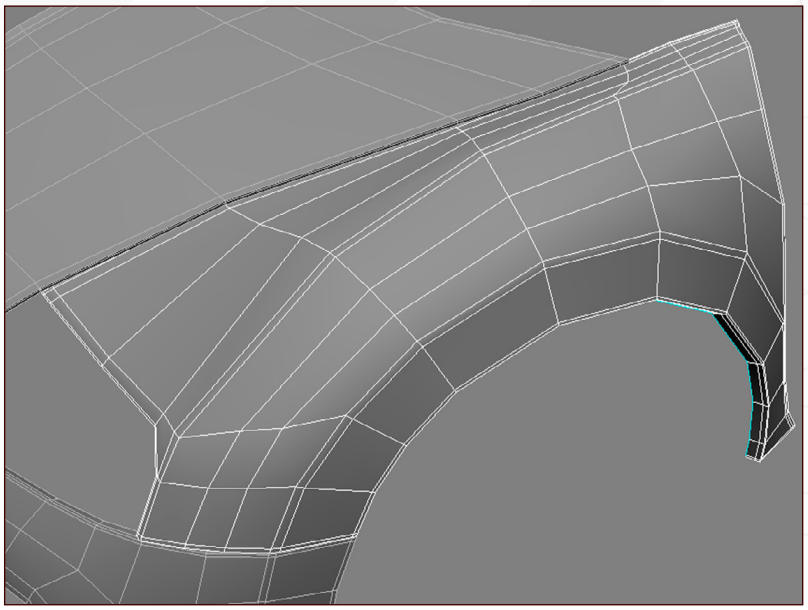
Similarly, make the other side section and the front bumper (**Fig12**).

With the methods I've shown previously, move onto the other panels and finish off their geometry.

Don't forget to add more detail according to what is shown on the reference photos and then to adjust the parts so that they match each other. Sometimes by changing a panel, you make it necessary to change the other panels too.

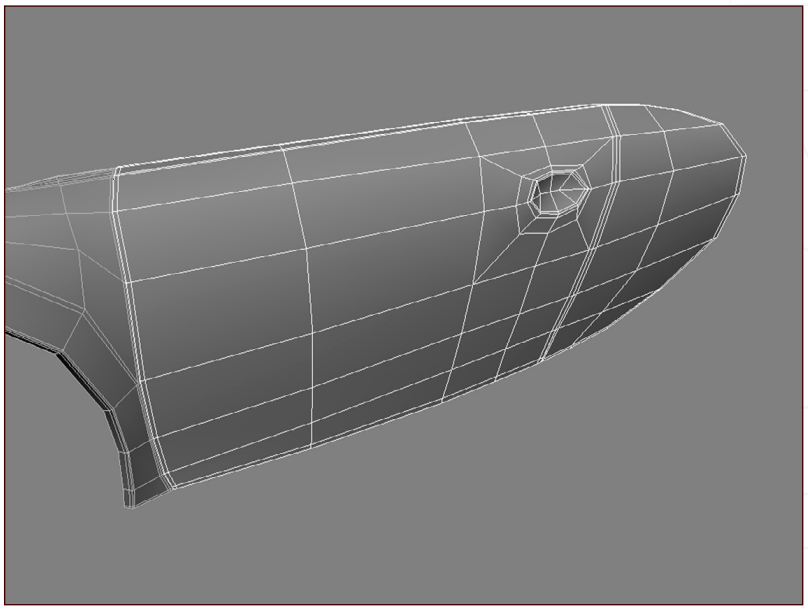
Next is the front wheel arch (**Fig13**).

Fig 13



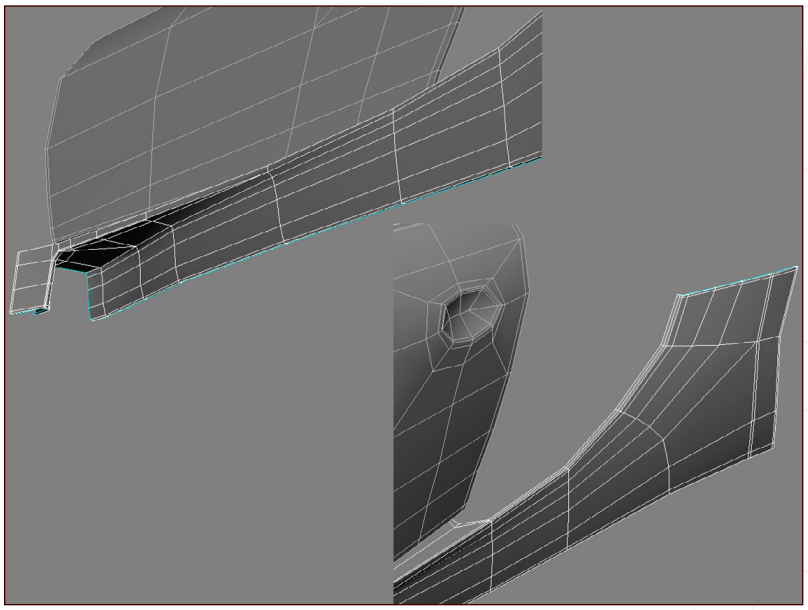
Let's look at the door and the panel that belongs to it. Make the indenture on the door which is going to be needed for the handle (**Fig14**).

Fig 14



Make the two air inlets for the panel that is under the door, and finish off the geometry for this section.(**Fig15**).

Fig 15



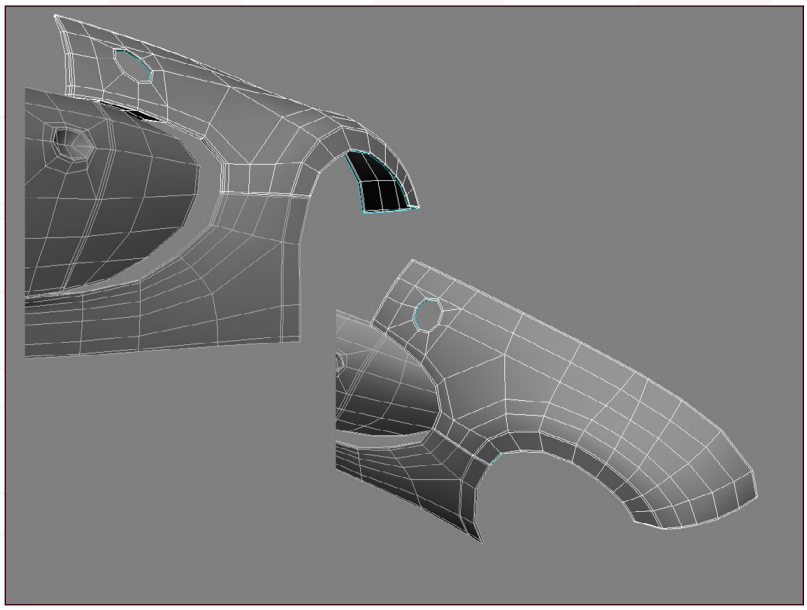


Fig 16

Lets make the back wheel arch (**Fig16**).

Don't forget the air inlet and the petrol hatch!

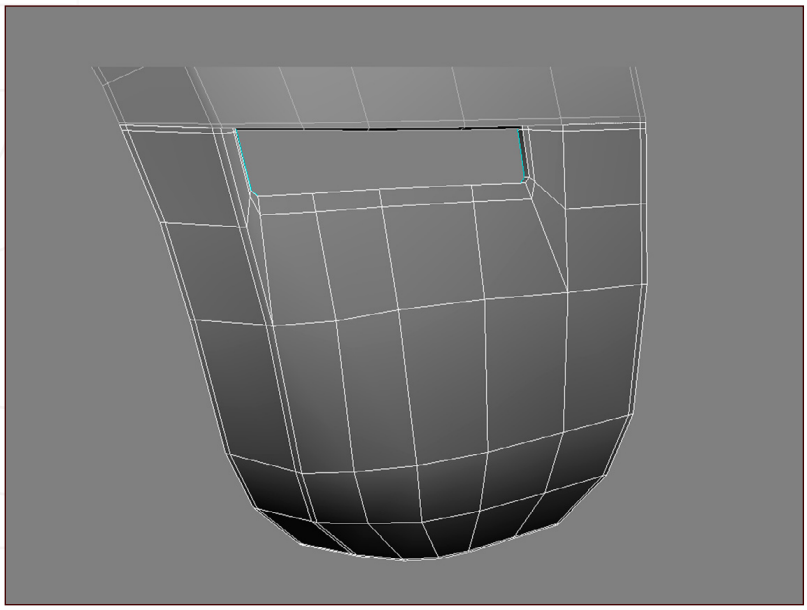


Fig 17

Be careful when making the turn signal at the end part of the back wheel arch (**Fig17**).

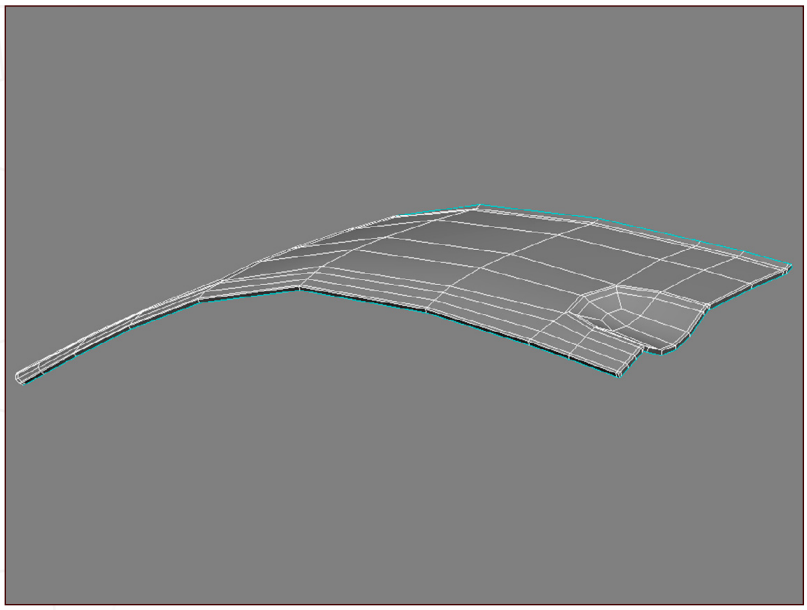
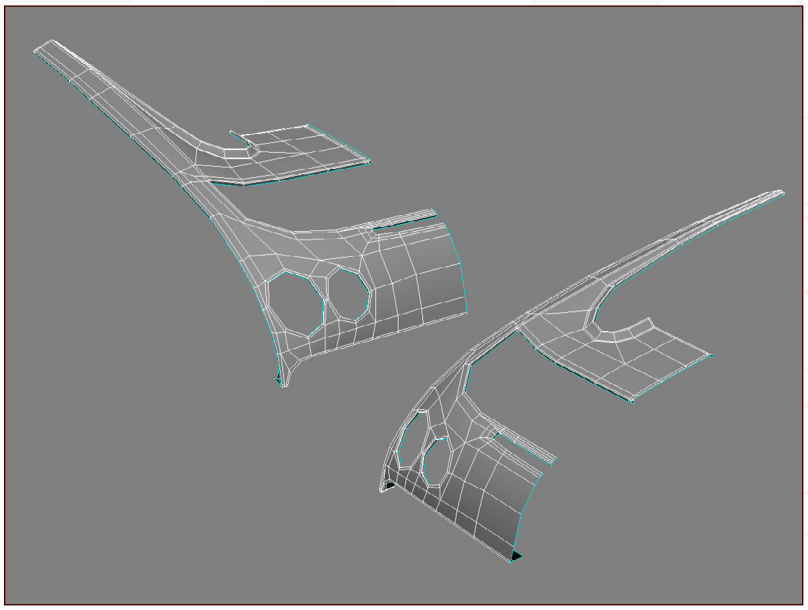


Fig 18

Let's move on to the roof of the car. With the methods I've shown previously on the trunk, create the ballooning along the symmetry axis and make the air inlet (**Fig18**).

The most complex part of this model is the top of the engine panel. Be careful with the edge around the air inlet and be sure to make the ridge along the centre, along the symmetry axis.

Fig 19

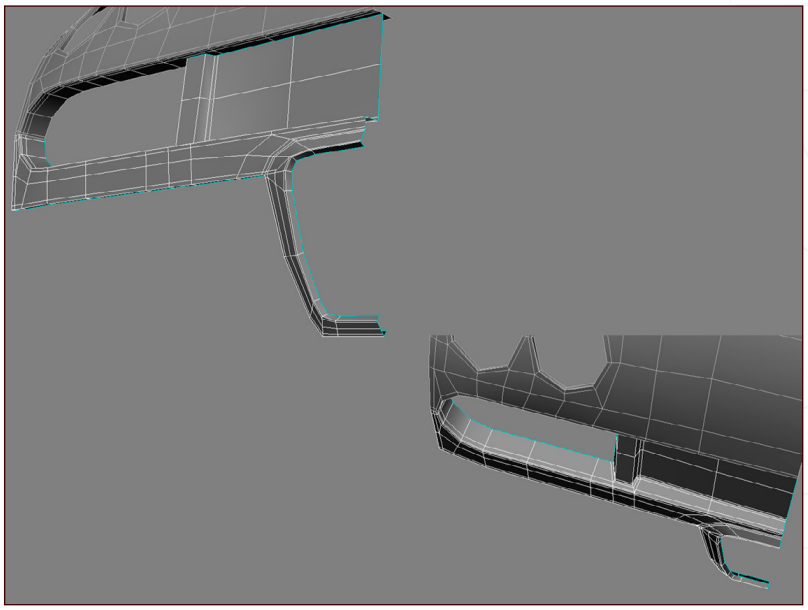


See the two back lights at the front view? Cut them out as regular octagons and edge the margin.

Same with the middle spot lamp. Cut and edge the margin (**Fig19**).

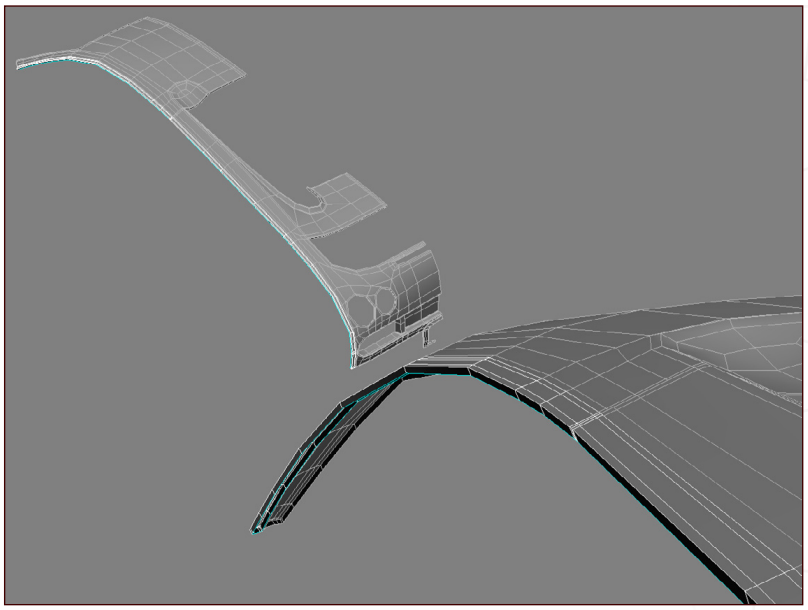
Be careful with the placing of the edges around the license plate holder and the exhaust (**Fig20**).

Fig 20



Cut the three last panels' margins, and prepare three stripes from this (**Fig21**).

Fig 21



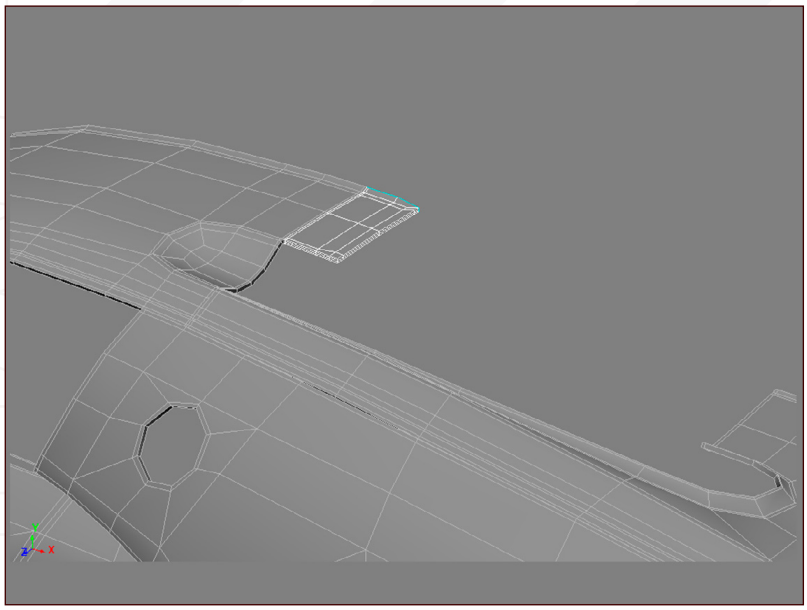


Fig 22

Now let's add some accessories. We can see on the reference photos that there's a little panel which is following the roof. Let's make it. (**Fig22**).

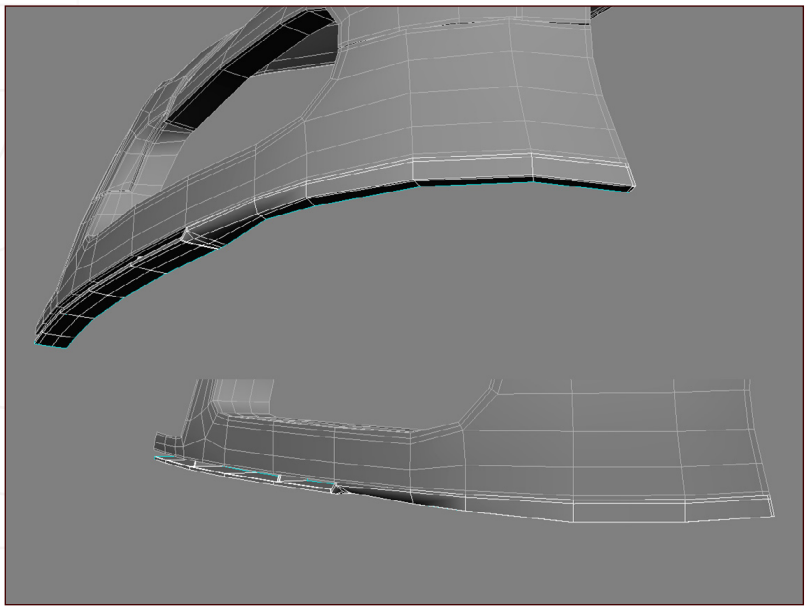


Fig 23

Let's make the little air inlet under the front panels (**Fig23**).

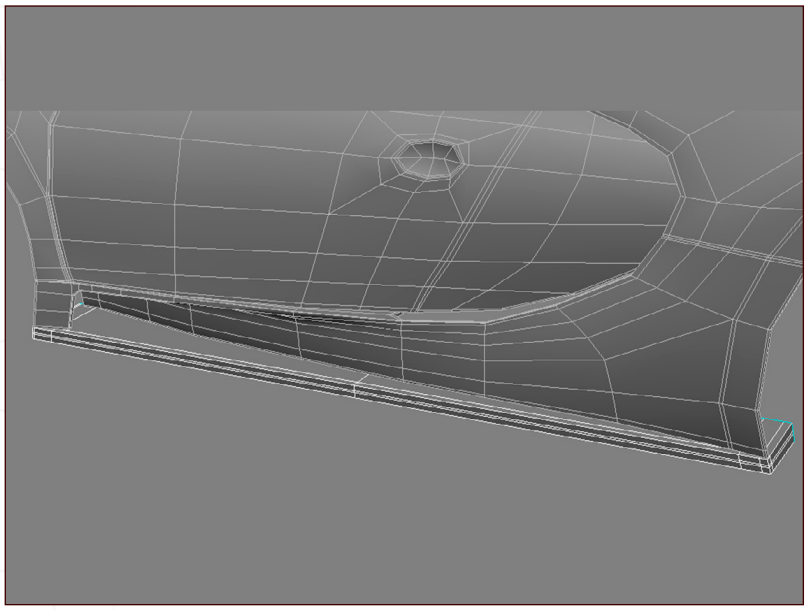
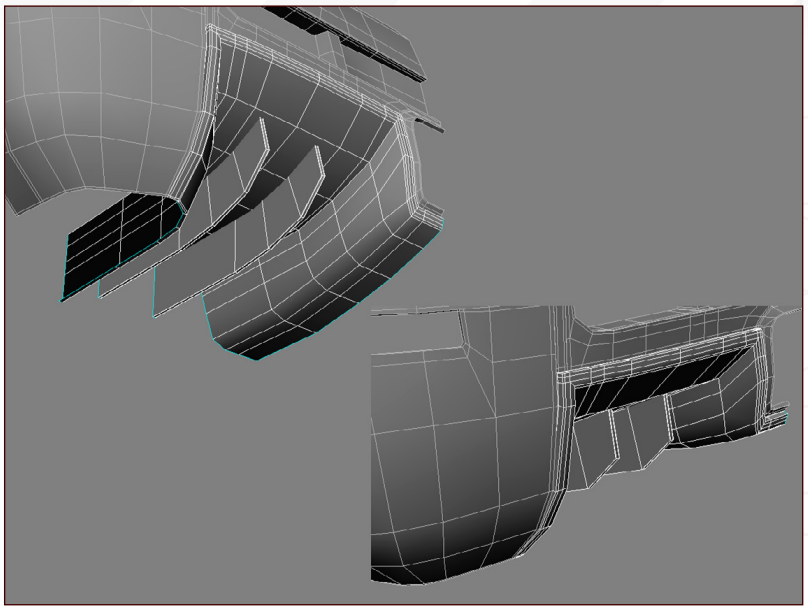


Fig 24

Next, let's make the simple panel under the air inlet that we can find on the side. (**Fig24**).

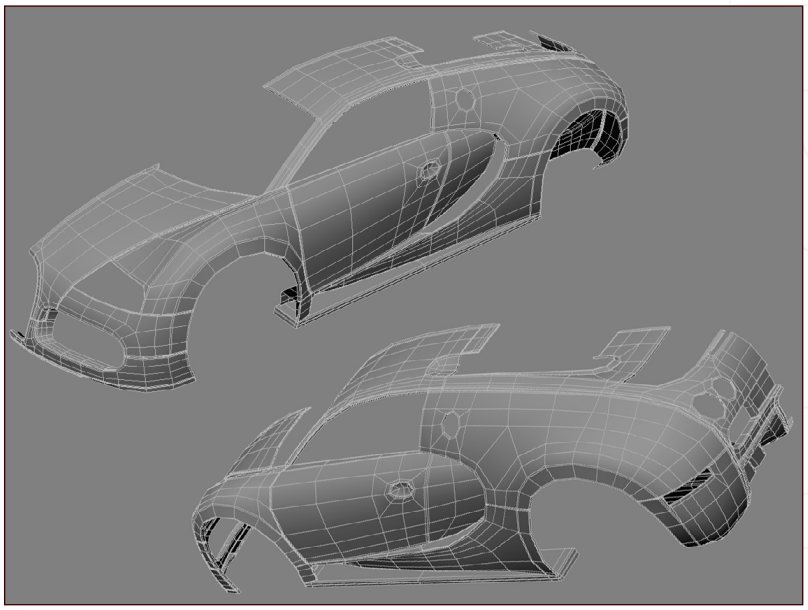
Now back to the exhaust. The back air effluent is more challenging to finish (**Fig25**).

Fig 25



Let's put the finished panels together (**Fig26**) and adjust them again after smoothing (**Fig27**).

Fig 26

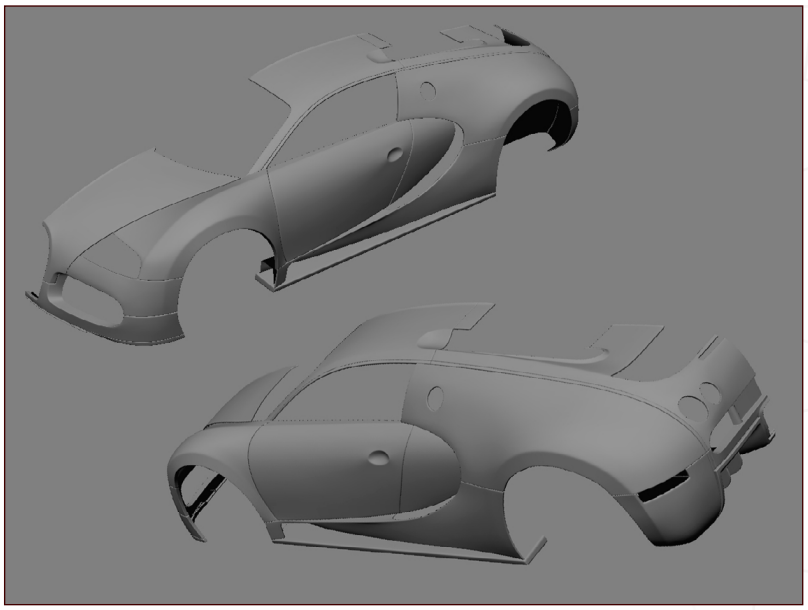


While we have reached the end of the modelling in this tutorial, the work is still not completely finished. It's important to refer back to the reference photos now and make the geometry of the model as accurate as we can.

Well we have reached the end of the second part of this tutorial. Once again, I hope it was interesting and that you found it useful. In the next edition, I will be showing you how to create details such as the lights, radiator grills, vents, etc.

BUGATTI VEYRON: PART 2

Fig 27



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